Building Services News

Volume 18 | Issue 3 Article 1

4-1-1979

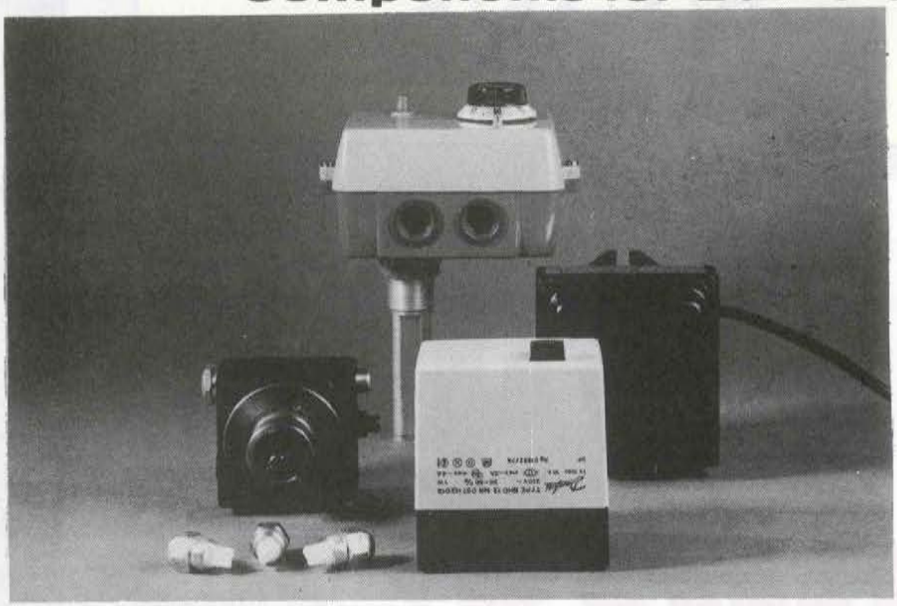
Irish H & V News

IRISH H&V NEWS
MARCH 1979

INDUSTRY CROSSROADS FOR DOUBLE SIZE IHVEX '79

THE DANFOSS FAMILY

Components for Burners and Boilers

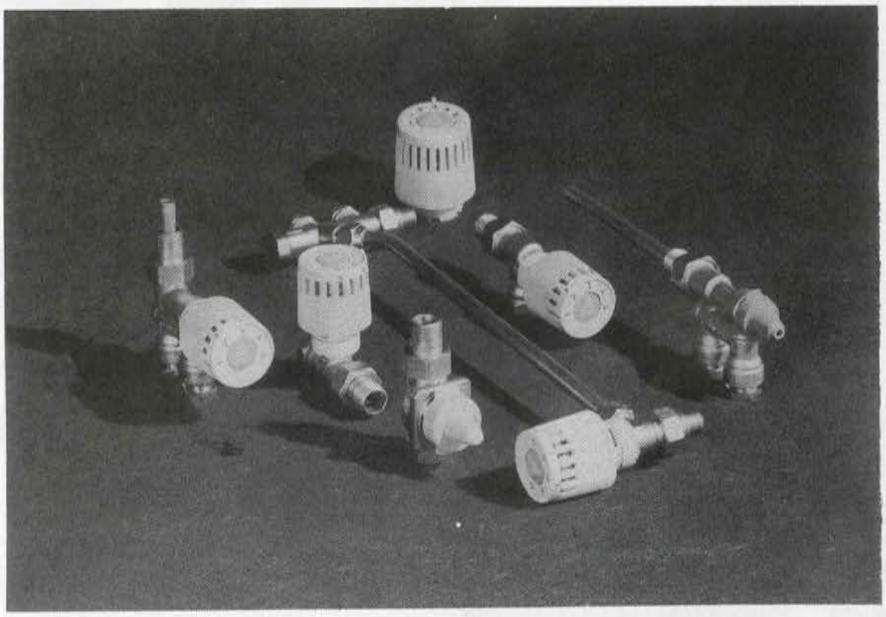


Danfoss supplies quality components for burners and boilers.

* Full range of Oil Nozzles in angles 30°/45°/60° and 80° in variations from 0.5 u.s. gals to 32 u.s. gals.
* Control Boxes and Photo Cells which give fully automatic control of single and three phase burner plants.
* Oil Pumps, Transformers and Boiler Thermostats in addition form a complete range for any burner.

Thermostatic Radiator Valves

1) Up to 20% saving in fuel used with Danfoss Rad Thermostats.
2. Valves are available for pumped and gravity heating systems and HWS from 3/8 to 1 in BSP, straight or angled patterns. 12 mm and 15 mm valves with copper connections also available.
3) No electrical work is required so wiring costs are saved.
4) Radiator thermostats replace the radiator flow valves so the cost of the flow valve is saved for each radiator.
5) Valves and thermostatic elements are available from most builders merchants and heating stockists.
6) Servicing and repairs do not involve a systems drain down.



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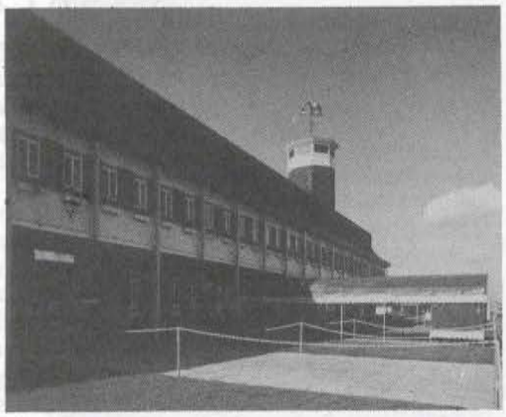
IHVEX '79



The largest exhibition of its kind ever staged in Ireland, IHVEX '79 will be held from April 3 - 6 in the RDS, Simmonscourt Pavillion. Details of the Show on page 16 . The Show catalogue is also included in this issue.

The Law and Building Services Design

Ben Costello, a building services engineer with Varming, Mulcahy Reilly Associates, writes about heating, ventilating and humidity in the first of a series of pull-out pages on The Law and Building Services Design in this country. See page 21 .

FUEL FOR THOUGHT

Frank Lunny, consultant fuel technologist to Bord na Mona talks candidly about his background and his views on nuclear energy and domestic heating requirements on page 30 .

"FROM LAMP STANDARDS TO PIPEWORK"

Established in 1869 in Bishop Street near the old Jacob's biscuit factory, Tonge and Taggart is one of this country's oldest cast iron foundries. A profile on the company, their employees and the work they do starts on page 18 .

CONTENTS

IHVN NEWSDESK

NO NEW BUSINESS OIL COMPANIES SAY

A complete clampdown on new business by domestic oil heating companies is causing grave concern amongst heating contractors and installers. And although it is not actually being mentioned, the threat is that unless something is done immediately to alleviate the situation, a crisis similar to that of 1973/74 is unavoidable.

"We just can't get any oil for our new customers," one company told IHVN. "And if we are able to obtain supplies, it's either a 100 gallons or less or we have to wait two or three weeks for delivery. Contracts therefore are going unfilled and final payments, amounting to between 40 and 100% of the final figure, unpaid. "And when you're finalising at least two new oil fired installations a week," another contractor told IHVN, "we're talking about money." He admitted that while the situation was "serious" it wasn't as yet "critical", "but it can't go on much longer. Customers don't want to wait six weeks for a system to be completely installed (i.e. that included the two to three week waiting period the oil companies are currently quoting). It'll be summer then. They'll wait until later in the year to install. In the meantime, I'm losing business now and my bank manager is not at all amused."

Discontent amongst installers is high and the complaints are that the suppliers just don't have the oil to give. A fear which it turns out is well-founded. According to a Burmah Castrol spokesman, "Due to the serious shipping disruptions from the third week in December right through to late February, and the fact that it was a bumper year for sales of domestic heating oil, we've been badly caught out. The result is that demand has exceeded supply."

"Sales rose last year by 11%," another oil company official said, "and with the Iranian crises causing at least a world shortage of between 2 - 5%, our obligation is to provide oil for those customers with whom we have contracts."

The situation at Esso appears to be somewhat more critical and a public relations executive admitted that as of March 1, the company had been forced not only to refuse any new business but also to reduce its oil deliveries to regular customers proportionally. What this implied in terms of percentage, he refused to devulge, but did admit that essential services were the least likely to be effected.

But is bad weather, shipping and the Iranian situation the 'real' reasons? More than one installer has hinted at the "politics" behind the issue, mentioning the fact that perhaps the price increases which are due to come into effect shortly might have a bearing on the cutdopwn in oil supplies. "Completely untrue", the Esso spokesman said. "We do have a price increase proposal before the Prices Commission, but we are not holding back supplies because of it. We just don't have the oil to sell." "The shortage is hurting us too, don't forget," another oil company official said. "We're here to supply oil and if we don't, we're loosing business just like the contractor or installer is."

As we go to press earlier allegations from contractors that oil suppliers were deliberately withholding oil because of imminent price increases were given some substance by the admission from the ESB that they had applied to the National Prices Commission for a 20% rise in their charges to consumers because of substantial price increases in the price of basic raw oil.

ESB confirmed to press queries that they had suffered a 50% rise in the cost of its residual fuel oil in recent months.

Last November the ESB was paying between 70 and 80 dollars a tonne for the basic raw material but by the end of February the cost had risen to between 110 and 120 dollars and showed ominous signs of increasing further due to the uncertainty of the Iranian crisis.

Suppliers of LPG are also believed to be considering an increase and the news that a 10% increase in the price of crude oil by OPEC at the beginning of the year has not helped the situation.

PLASTIC PRICES INCREASE SHARPLY

The prices of plastic raw materials have risen sharply in recent months and the trend is likely to continue well through 1979.

According to a statement issued recently by the Plastic Industries Association, raw materials increased significantly in the final quarter of last year and further staged rises are planned by leading chemical companies for the next few months. Materials most affected are PVC, polyethylene, polystyrene and polypropylene.

The reason for the increases revolves around naptha which is a basic feedstock from which plastic raw materials are derived. These prices rose dramatically last year and at present there is also a shortage of the chemical. The 14.5% oil increases announced by the Organisation of Petroleum Exporting Companies last month, coupled with the halt in Iranian oil elxports, will also contribute to higher prices. The rise in naptha costs has serious consequences for an extra 10% on the chemical normally means a 20% rise on the price of plastic raw materials.

BRIEFLY

Allied Heaters (Exports) Ltd. an associate company of Super Ser Ltd., have recently moved into a new £1.5 million plant at Greenhills Road, Tallaght. A wholly owned Irish company, Allied will manufacture portable cabinet gas heaters for export to the UK and USA. Production for the Ardent Arabia heaters this year should reach 75,000 with an estimated value of £4.5 million 95% of them which will be exported.

VEQUIP AGENCY FOR COLOUR

Coolair Ltd. has been appointed distributors in the Republic of Ireland for Vequip air handling equipment.

Manufactured in the UK, the Vequip range comprises air handling units in standard and fast build form, twin fan extractors and air purification equipment.

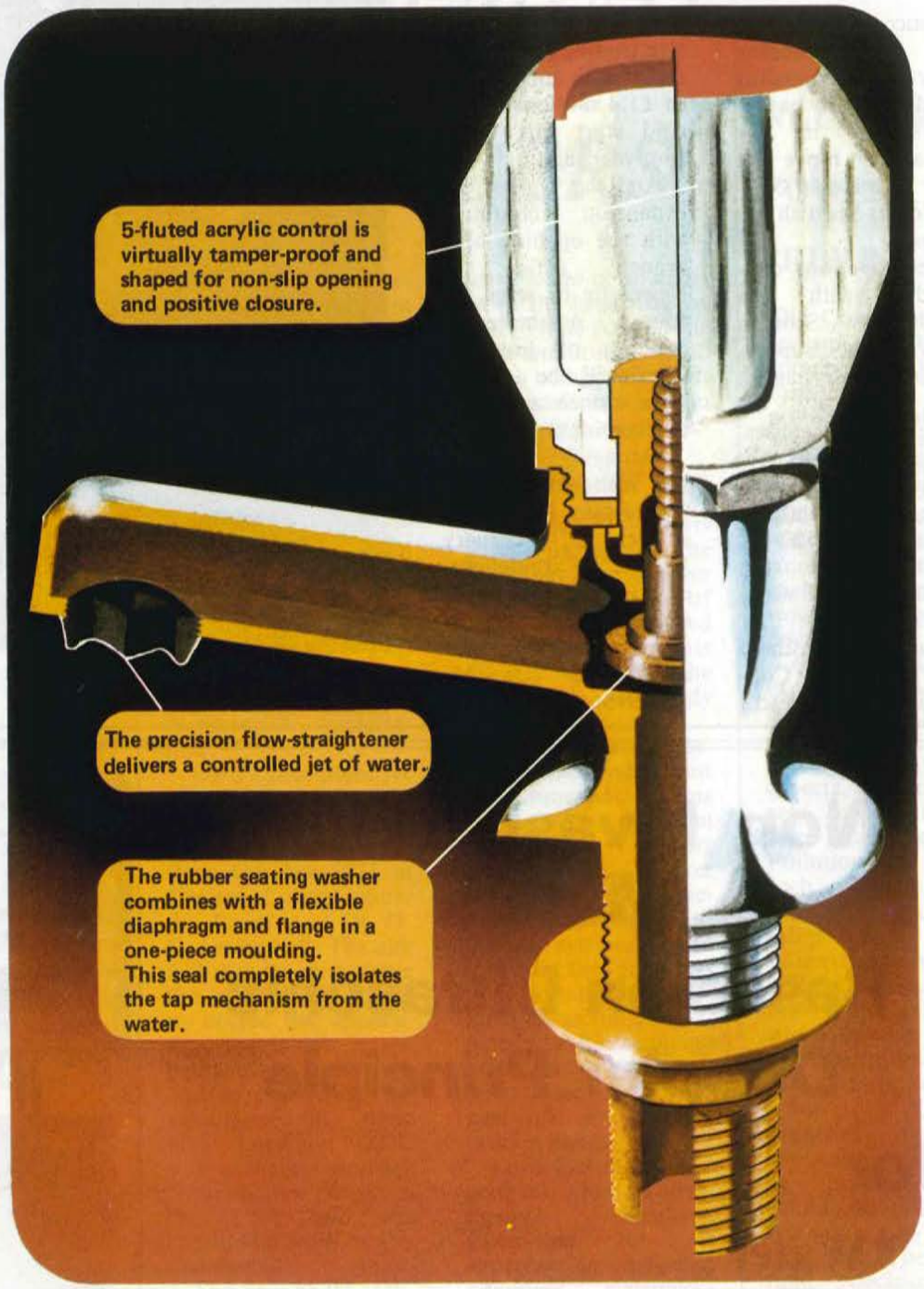
There are fourteen models in the air handling range, all with double skinned infill panels for better thermal insulation and reduced noise breakout.l Sections bolt easily together for rapid site assembly and all moving parts are isolated from casings for increased anti-vibration.

Vequip's twin fan extract units are specially designed with a duplicate stand-by fan system for use in hospitals, hotels, factories and offices and are constructed from corrosion-proof steel for internal or external mounting.

The Vequip air purification unit is fitted with an activated carbon filter to enable large quantities of air to be recirculated and purified thus increasing the efficiency and reducing the running costs of heating and air conditioning installations.

SANBRA FYFFE SAFLO SETS A NEW STANDARD IN TAPS

The old British Standard BS 1010 laid down dimensional control of pillar taps. Performance is the heart of the new BS 5412 which replaces it. SAFLO, the first diaphragm tap in Ireland has been designed and produced by Sanbra Fyffe to BS 5412 and many exacting mechanical and hydraulic characteristics are embodied in these stylish new taps to give superb performance and ease of maintenance. Not surprising that these quality Irish taps have been approved by Dublin Corporation. You'll approve of them, too !



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WALKER'S SCOTTISH "COLONY" TREBLES IN SIZE

The success of Walker Air Conditioning policy of expanding outside its Irish base is underscored in the company's move to larger premises in Glasgow for its Scottish operation.

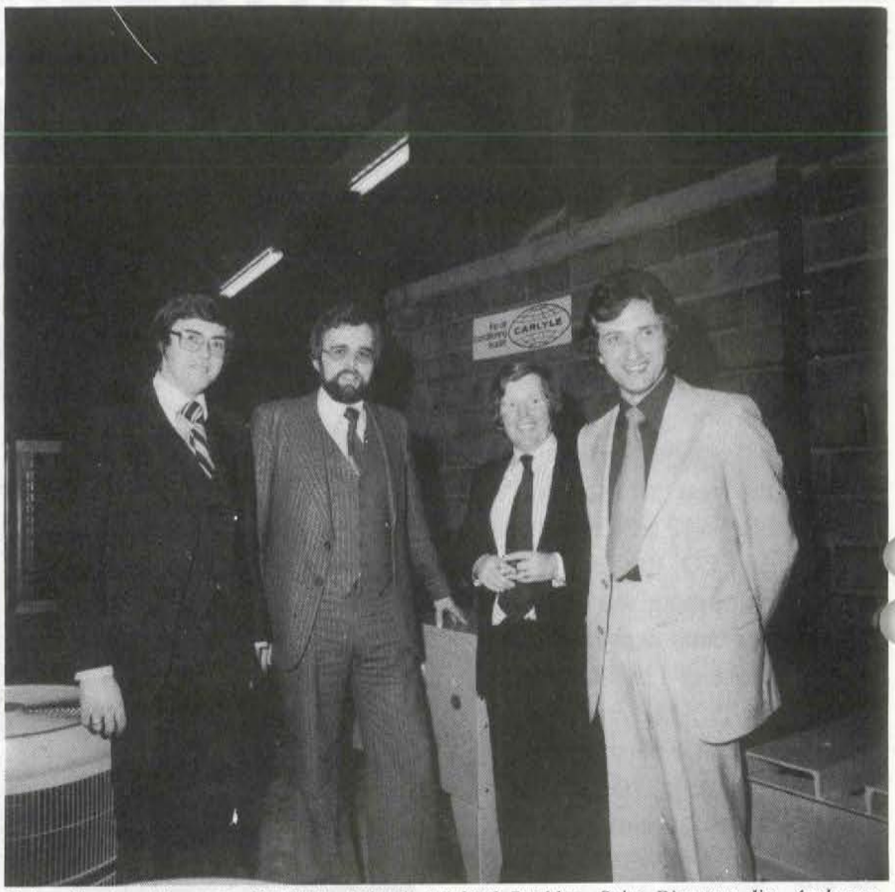
The move was celebrated with a traditional Scottish Burns Night Supper, complete with haggis, piper, and whisky.

The new premises, on the prestigious Abbotsinch Industrial Estate near Glasgow Airport, has 2,500 sq. ft. of offices and 11,000 sq. ft. of warehouse space.

Trading in Scotland as Walker Air Conditioning (U.K.) Ltd., the company's progressive trading policy now sees it with annual sales of £1.4 million from a cold start just under four years ago.

And the Walker UK expansion continues with the opening of a branch office in Newcastle to serve the four northernmost counties of England. This will be staffed with service and sales engineering staff.

Managing director, Jim Anderson, reports record sales for the fiscal year to 1 February 1979. "We are delighted with the continuing success of our Glasgow operation", commented Mr Anderson. "Our



Brian Hunter, Manager, Northern Ireland; Michael Buckley, Sales Director; Jim Anderson, Managing Director; and George Whillock, Manager, Scotland (L-R) at the opening of Walker Air Conditioning's new premises in Scotland.

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group, Jefferson Smurfit, is in a very strong financial position at present with a projected turnover for the year to January '79 of £200 million and profits estimated at £20 million.

"They are prepared to back our growth all the way, but right now we ourselves have surplus cash and are searching for acquisitions which will fit in with our policy of expanding into activities that will complement our Carlyle distribution activities", he concluded.

With Walker declaring itself to be on the acquisition trail, IHVN understands that feelers have already been put out for the purchase of existing well-established distributorship businesses that would achieve their full development potential given the type of strong financial backing and general trading expertise which Walker can supply.

Walker which set up its Glasgow operation when it won the Carlyle distributorship in Scotland and director, George Whillock, believes that it is now the leading supplier of air conditioning and refrigeration plant in Scotland. The Glasgow office now handles just over half the company's sales of Carlyle equipment.

The need for larger premises arose as a direct consequence of business expansion. The continuing increase in sales, particularly of packages, meant a proportionate increase was required in stocking levels of new equipment and of spares and the warehouse could no longer cope.

The pressure on space was increased by the company's policy during 1978 of increasing stock proportions in relation to sales and by its policy of expanding its in-house repair and service facilities.

An example of the policy of increasing stocks is that during the first three months of '79 the company will be receiving the largest consignment of compressors every despatched to a Carlyle distributor anywhere in Europe. These are mainly 5 series open compressors, many of which will be destined for the marine and offshore oil industries.

A view of Walker Air Conditioning's new premises in Glasgow.

DISCLOSURE AGREEMENT ON DUCT SILENCERS

Britain's National Research Development Corporation (NRDC) and Lord Corporation of Eire, Pennsylvania, USA, have signed a mutual disclosure agreement that brings the pioneering work of Dr M A Swinbanks of Trinity College, Cambridge, and Chelsea College, London, on the design of active silencers for duct-borne low-frequency noise, another step closer to commercial exploitation.

Lord's first objective is to confirm the results already achieved with NRDC sponsorship since October 1975 at Chelsea College under the direction of Dr H G Leventhall. The aim will then be to evaluate the technique in order to decide the application for which it appears most promising, and to pursue the development in these areas. Lord and NRDC will exchange findings from the new project in the USA and the continuing work by Dr Swinbanks.

The Swinbanks technique uses two, or possibly more, loudspeakers mounted in the wall of a duct to reduce the level of noise transmitted from, say, an air-conditioning system to an office.

Microphones monitor plane sound waves coming down the duct and feed amplifier circuits that drive the two loudspeakers, which are a metre or so apart down the length of the duct. These contain the large-amplitude sound waves within this short section of duct and, in effect, soak up the acoustic noise.

In the past few months, Dr Swinbank's efforts have increased the frequency range over which an attenuation of 20dB can be achieved to 20-700 Hz, which is roughly double the bandwidth previously announced.

The ultimate objectives is the development of commercial systems for practical applications. Apart from the large market offered by noise reduction in heating and ventilating systems, there are also the prospects of quietening exhausts from industrial gas turbines and reducing noise and vibration transmitted in pipework in chemical process plant.

Lord Corporation is probably best known through Hughson Chemicals for its expertise in specialist adhesives, elastomers and polymers, and Lord Kinematics, a leader in vibration, shock and noise-control devices and materials.

Both Lord and NRDC are continuing to assess the potential industrial usage of active silencers and would welcome discussions with likely future users.

GOVERNMENT SET UP NUCLEAR POWER TRIBUNAL

The Government is to set up a tribunal to enquire into "all features" of nuclear power stations, the Minister for Transport, Power and Energy, Mr Desmond O'Malley, told the Fianna Fail Ard Fheis. Special legislation covering the station's construction would also be introduced.

Mr O'Malley explained that the inquiry would cover, not alone the environmental and planning aspects, currently covered by the Planning Acts and the Water Pollution Act, but also such matters as health, economics, safety and security stations. And he added: "There should therefore be no inhibitions whatsoever on genuine objectors putting their case to the inquiry.'

Mr O'Malley promised that the tribunal's report would be published, and would be fully considered by the Government before any final decision was taken.

In an interview with the RTE "This Week" radio programme after his speech, Mr O'Malley said he now thought it necessary to put the facts before the people in order to allay fears and remedy the serious lack of information.

There were over 219 nuclear stations

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throughout the world and nobody had died as a result of an accident at any one of them. He pointed out the other industries were more dangerous and cited the example of the Bantry disaster and the deaths of coal miners.

In his speech, Mr. O'Malley pointed out that the inquiry was part of a three-tier decision by the Government on the proposed ESB nuclear station at Carnsore, Co. Wexford.

The ESB had been authorised to complete draft specifications for the project. This would require consulting further with manufacturers and suppliers and seeking, but not accepting, tenders, so that it could narrow down the choice to the most suitable type of reactor, and establish its cost.

In addition, Mr O'Malley said that to ensure that all features of the project were fully analysed before a final decision was taken, the Government had decided to set up an inter-departmental committee. It would have representatives at senior level of relevant Departments to assess the ESB proposals in detail, as well as investigating all aspects of the project, including energy demand forecasts, and all the alternative means of meeting that demand.

He made it clear, also, that he intended that the committee should report to him before the tribunal sat, so that their report could be published and presented to the tribunal.

The Minister estimated that it would take 18 months for the three-part process to be compleated. If, at the end of it, the Government decided to build a nuclear station, it would be necessary for the Oireachtas to pass a further Bill providing the necessary capital for the ESB.

He remarked: "I think therefore, that it will be generally agreed that the Government has taken every step, reasonably open to it, in having this proposal examined as thoroughly and deeply as possible in public, with freedom for all points of view - even the most irrational - to be expressed."

The decision was widely welcomed by the anti-nuclear lobby.

Offer for Irish Marine Oil

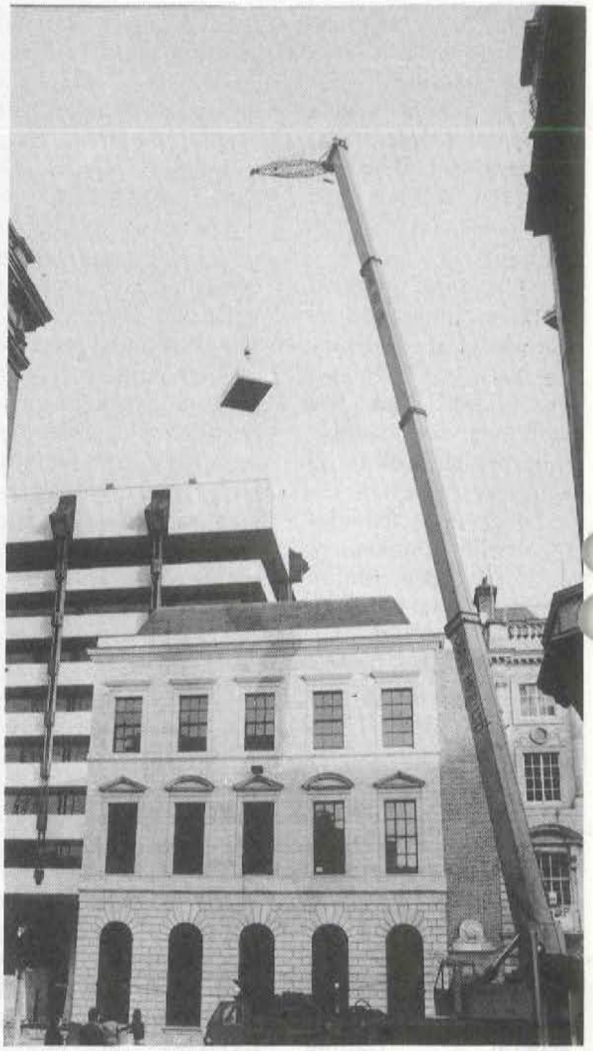
Irish Marine Oil has received a take-over offer valued at £1/4m. from Cluff Oil, a publicly quoted British company. The offer is seven ordinary Cluff shares for every 100 IMO shares and values the £1 shares at 23.87p compared with a net asset value of 20.9p. IMO's accounts for the year ended October 31st, 1978 published recently show that it plunged into the red to the tune of £200,922. This, together with previous years' losses, resulted in the shareholders funds being virtually wiped out. In fact, the original shareholders funds of £1m. has been reduced to £190,880 so the company was badly in need of a cash injection. Failing that, IMO would have been forced to go into liquidation.

IMO's interests include a 1% stake in Petroleum Royalties of Ireland, 10% in Kenmare Oil Exploration, 7% in European Marine Oil and 9% in Flexodrilling. These investments cost £261,341 and have been written down to £97,860. Cluff's interest in IMO is undoubtedly the stake in Kenmare Oil. It has a 5% interest in the Elf Consortium which has one dry well in the Fastnet area but found minor traces of oil in the well drilled in the Porcupine basin. One further well is to be drilled by Elf this year and this would have placed a strain on IMO's resources. But as part of Cluff which also has a stake in the Elf consortium, this problem will be erased.

A £1.4m. agreed take-over deal has been announced for G.R. Francis Group, the Birmingham-based heating and plumbing merchants.

The Francis directors have accepted a cash offer of 68p a share from West Midlands Group Central Manufacturing and Trading.

An American space agency engineer, Dr. Kenneth Bellman, has come up with somewhat novel solar power plan, Bellman proposes placing hundreds of huge mirrors in orbit to beam sunlight, around the clock, to vast energy collectors on earth. Thus electricity equal to that produced by dozens of nuclear power plants would be generated. 'By providing a nearly continuous high noon desert sunlight intensity, the expense of solar energy conversions would be dramaticallay reduced," Bellman says.



A 100-tonne mobile crane was needed to lift the air conditioning unit, supplied by Coolair Ltd, unto the roof of Bloom's Hotel located immediately adjacent to the new Central Bank.

CROSS TO SUPPLY BLOOMS HOTEL

A contract to supply refrigeration equipment to Dublin's new Blooms Hotel has been awarded to Cross Refrigeration Ltd.

Included in the order is the provision of specialised stainless steel equipment for chill and deep freezing in the kitchen area, several cold rooms and special fish storage cabinets. The company will also supply wine coolers and refrigerated self-service buffet equipment, plus 'Cubemaster' ice makers to provide ice making facilities on each floor and in the bars and function rooms.

IDHE DANCE

The IDHE annual dinner dance will take place on Friday, March 30 in the Shelbourne Hotel from 9 p.m. to 2 a.m. Dress is formal. Tickets are £9.50 per person and may be obtained from Social Committee Chairman, Christy Kane, 55 Kilmore Drive, Dublin 5. Tel. 316058.

In April Visit

IhVex

The Big Heating & Ventilating / Air Conditioning / Refrigeration / Fuel Conservation
Environmental Engineering / Pollution Control Exhibition

Dates for your Diary.

APRIL 1979	Engagements
Tuesday 3	Visiting IhVex at R.D.S Dublin 11.00 – 18.00
Wednesday 4	LATE OPENING 11.00 – 21.00
Thursday 5	11.00 – 18.00
Friday 6	11.00 – 18.00

Moving to Simmonscourt

Reflecting its increased scope and significance IhVex 79 moves to a bigger venue in Dublin's newest and most advanced exhibition complex - Royal Dublin Society's Simmonscourt Pavilion.

Tickets and information available from
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MEET THE INDUSTRY'S BIG NAMES UNDER ONE ROOF AT IHVEX '79

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Roof Units Ltd.
Netaline Distribution Products.
Calor Gas Ireland
Coolair Ltd/Cross Refrigeration Ltd.
Dalkin Air Conditioning Equipment
Barber & Colman
Airedale Air Conditioning Ltd.
Denks of Netherton.
Europair Ltd.
Euro Pumps Ltd.
Hill Foster
Euramo
Flakt Ltd.
Gerkros Boilers
Lamborghini.
James Gleeson & Co. Ltd.
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Weishaupt
Pioneer Radiant Products.
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Tirolis
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Aftco
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Buderus
Riello
Andrews Industrial Equipment
Wing
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Triple-E
Happel.
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Kanco
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Robinair
Insultube
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Zona
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Hammond Ltd.
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Oldmill Ltd.
Tarm Boiler
Electrical Engineering Services
Electricity Supply Board
S.L. Combustion Services Ltd.
Robey of Lincoln
Barlo Heating Ltd.
Bartol Plastics Ltd.
Acorn
B. & E. Boilers
Windsor
European
Bracknell
Brooks Thomas & Co.
Brown Boveri
Landis & Gyr
S.W. Carty & Son Ltd.
Kent Instruments

Gould Contrado
Alco
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Scandanavian Inputs
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Kent Meters Ltd.
Foster Cambridge Ltd.
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Serseg
Amri
Itap
Wheeler Corporation
Consort Rothenberger
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Climevent
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C.H.S.
Drayton Controls Ltd.
Kenmore Refrigeration Equipment (U.K.) Ltd.
Flowflex Components Ltd.
Cazzaniga Spa of Milan
Floatvent
Filmatic
Salamander (Engineering) Ltd.
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F.I.M.E.T.
Runtalrad Ltd.
Refractories of Bailieborough
Thistle, Nettle & Empire Fire Bricks
Durax Castables
Douglas Fire Clay
Stein Mouldables
Solerin Ltd.
Sheffield Insulations
Tradfire Ltd.
George Kraemer & Co.
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Girdlestone
Vokes Air Filters
Vokes Liquid Filters
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Castlereagh Sheet Metal Eng. Co. Ltd.
Unitrunk
Warmflow
Weld Moore Dist.
Hi-Jet
I.S.A.S.
Luwa (U.K.) Ltd.
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Imperial Eastman
Alnor Velometers
E.N.F.M. Pressure Gauges
Bitzer

Rueger Thermotors
Tempkey Multipoint Temperature Indicators
McKenna (I) Ltd.
Airflow Developments Ltd.
W. H. O'Gorman (I) Ltd.
O'Gorman Manufacturing Ltd.
Cole Equipment Ltd.
Detroit Sma
Norcool A.S.
Cosalt Coolair Ltd.
H.R. Holfeld
Hevac Ltd.
Rio Boilers
Nu-Way Boilers
Danesmoor Boilers
Francia Hoval Radiators
Selkirk Metalbestos Flues
Guinard Pumps
Virax Tools
Smiths Time Controls
Nu-Way Benson Space Heaters
Chappee Boilers
Allen-Ygnis Boilers
Senior Economisers
Universal Incinerators
York Air Conditioning
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Denco Miller Air Conditioning
Solyvent-Ventec
Clirel Chillers
Piroil Burners
Heatshield Ltd.
Hall-Thermotank
Deltaclima
Scottaire
Hans Sasserath GmbH & Co.
Marley Plumbing Ltd.

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COSTELLO TO HEAD INQUIRY DISASTER

Mr Justice Costello of the High Court, has been authorised by the Oireachtas to investigate all safety measures at Whiddy Island and on the ill-fated tanker, Betelgeuse. The venue for the tribunal will be Bantry.

His inquiry will not be confined merely to the events on the disaster night, but to the precautions taken on the vessel and at the terminal before she actually arrived. He will be asked to assess the adequacy or measures to prevent, minimise and otherwise deal with fires and explosions.

Mr Costello will also have the power to make any recommendations which the tribunal, having regard to its findings, thinks proper.

FOUNTAINS MAY OUST COOLING TOWERS

Giant fountains could replace cooling towers at power stations if research by the UK Central Electricity Generating Board pays off.

The board has been looking at ways of cooling water without towers "and top of the list is a visually attractive system called spray cooling," said a board spokesman.

"Warm water is pumped through jets in a shallow canal and forced upwards in a coarse spray which is cooled in the air as it falls."

The idea is already catching on in America where environmentalists are strongly opposing cooling towers.

Geoff Parker, who has been working on cooling systems at the board's Generation and Construction Division at Barnwood, Gloucester, explained: "At the moment spray cooling is not a competitor for towers but it could solve a problem where towers are not acceptable. We need to test the system in the British climate."

He thinks fountains may be more efficient than present systems. If so, power stations may not need to be built beside large water supplies like rivers or on the coast.

"The same water will be available over and over again," said Mr Parker.

But cooling towers are not likely to disappear suddenly.

Research which is being done at Barnwood could result in all the spare heat from power stations being used to heat greenhouses, water for fish farms and even agricultural land.

"That's out target, but we won't reach it for a year or two yet," Mr Parker added.

IT'S ALL ENERGY AT EUCON

Eucon 79, the Energy Utilisation and Conservation Conference, will take place at the Royal Lancaster Hotel, London, from 3 - 5 April. Among the wide range of topics being covered in the papers are:

Investment appraisal, finance, and the impact of energy availability on capital investment.

Thermal insulation design, with particular reference to existing buildings.

Boiler plant options.

Heat recovery in space heating systems.

Role of air conditioning in energy conservation.

Conservation opportunities in refrigeration.

Recycling of high grade heat.

Compressed air systems.

Further information and bookings: Brintex Exhibitions Ltd., 178/-202 Great Portland Street, London W1N 6NH.

Work has commenced at the Clondalkin Industrial Estate on a 10,000 sq ft containerised warehouse and office complex for Nat Ross Ltd, furniture removers. Builders for the project are Crag Developments Ltd, and plumbing and heating is being handled by T E Lynskey, Artane.

At the signing (left to right) were: Mr R C A Hall, Chairman, Nat Ross Ltd, Mr Paul Hayes, Director, Crag Developments and Mr G T Exshaw, Managing Director, Nat Ross Ltd.

A technical lecture on pipe tools and treading machines was given to an IDHE meeting recently by Mr A Burgess, Regional Sales Manager, Consort Rothenberger. Attendance was high and included members from all branches of the industry - contracting, consulting and supplying. The treading machine and drain cleaner captured the attention of (L-R) John O'Neill and Martin O'Reilly both from Heiton McFerran, Patrick Murray (Murray Bros Ltd), Martin Hogan and Colm O'Connor, both from Oil Fired Services Ltd.

Rothenberger's range of smaller tools drew considerable attention and listening to Jim Hutchinson, General Sales Manager, Consort Rothenberger (centre) explain one or two salient features were (L - R) A Burgess, Consort Rothenberger, Martin Foster, I M Foster Ltd., Mr Hutchinson, Kieran Reynolds, Designed Heating Ltd, and Christy Kane, IDHE Committee.

Discussing one of the Rothernberger machines with Mr Burgess were (L - R) Bill Penrice, IDHE Secretary, Mr Burgess, J G Brickenden, IDHE Chairman, and Tommy Armstrong, Heiton McFerran.

NEW COAL FIRM ESTABLISHED

Dublin-based timber importers, W and L Crowe Ltd., have recently announced plans to set up a new coal importing company, Crocoal.

According to Paul Gallagher, chairman of Crowe, a large Australian firm has agreed to supply more than 100,000 tons in the first year, "hopefully commencing next September. We have also got supplies from the U S and are looking to other sources as well," he added.

Apart from supplying the bellmen who distribute coal from their owner-driver lorries around Dublin, Crocoal will also provide small retailers throughout the country, some of whom have been complaining that they can't get supplies.

Mr. Gallagher also said that Australian coal was on a standard similar to that of British coal, but it would be sold at the same price as Polish coal. The latter accounts for 90 p.c. of Irish sales at the moment.

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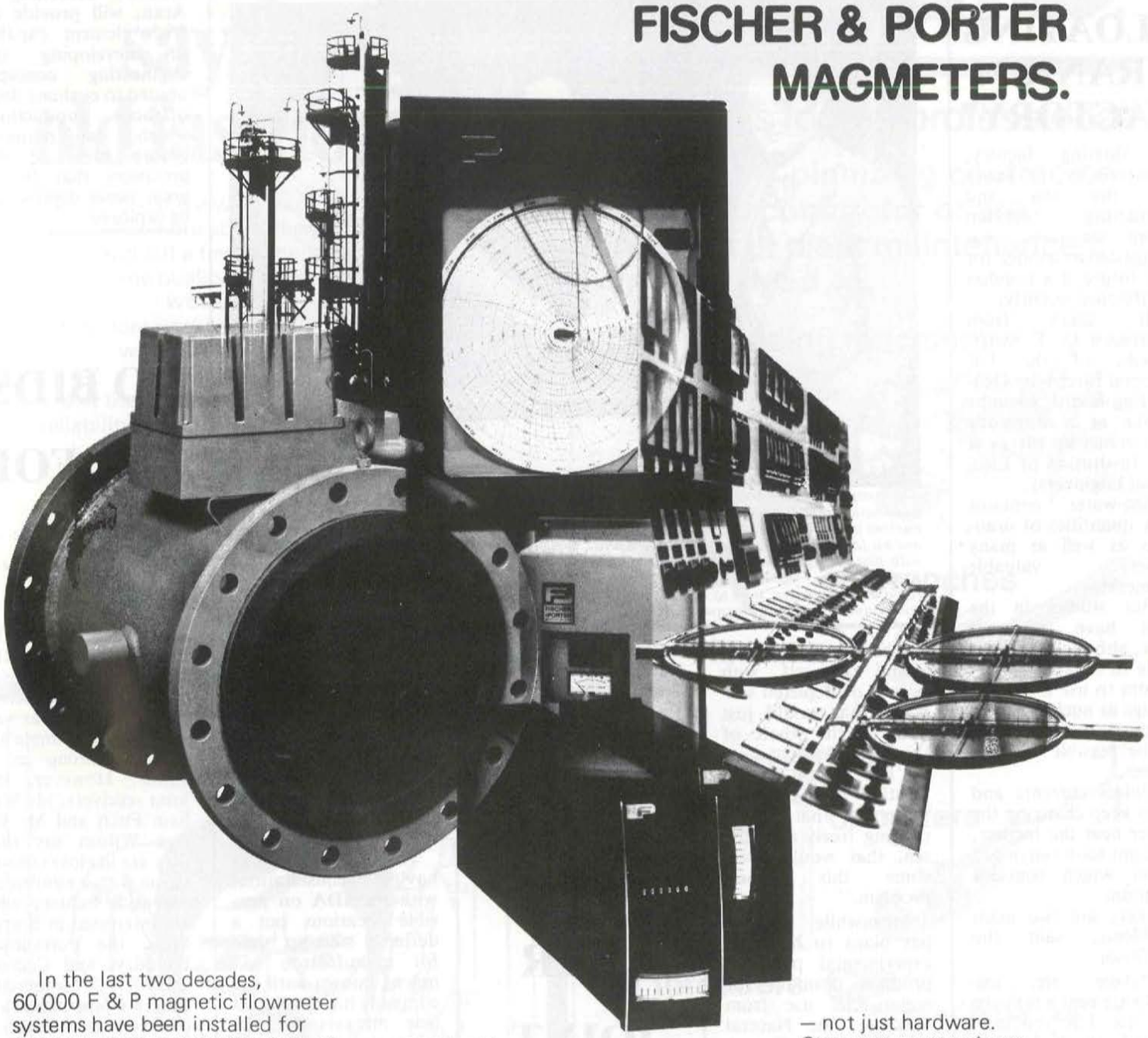
TWENTY YEARS OF SYSTEMS EXPERIENCE COME WITH FISCHER & PORTER MAGMETERS.



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The important thing is that we sell magnetic flowmeter systems — not just hardware. Our systems experience can be of help

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IHVN NEWSDESK

FLOATING URANIUM FACTORY?

A floating factory, powered by the waves of the sea and extracting uranium from sea-water, was suggested as an idea for the future at a London conference recently.

It came from Professor D. T Swiff-Hook, of the UK Central Electricity Generating Board, when he spoke at a three-day conference on energy at the Institution of Electrical Engineers.

Sea-water contains tiny quantities of uranium as well as many other valuable elements.

But studies in the past have suggested that, although it is possible to remove the uranium to use it in such things as nuclear power stations, it is not likely to be feasible in most places.

Unless currents and tides keep changing the water near the factory, it might soon run out of water which contains uranium.

There are two main problems, said the professor.

"There are ion-exchange beds which you can use, but you can't afford them because the bed needs to be so big if you just feed the sea-water through.

"They can be smaller if you can force the sea-water through the bed under pressure, but you can't afford the energy to do that. But wave energy comes for free - so perhaps you might afford it.

"The second problem with extracting uranium from the sea is the real killer. You have to use enormous quantities of water because all the minerals you are interested in are so dilute

The competition sponsored by Hilti (Ireland) Ltd. to mark the launch of their TE 12 electro-pneumatic drilling machine on the Irish market created great interest in the trade, and a large number of entries were received from all parts of the country. Our photo shows Andrew Lambert and his father Nickey Lambert of Wallace Bros., Wellingtonbridge, Co. Wexford, being presented with first prize, a 26-inch colour TV, by Ronnie Marsh, sales manager of Hilti. Second prize, a Kodak camera, was won by John McKeown, of H & J Martin Ltd., Belfast. Third prize, radio/cassette player, went to Barry Cunniffe of M. McNamara, Lisdoonvarna, Co. Clare. Many consolation prizes were also awarded.

"You could just surround yourself with oceans of depleted sea-water that would just gum up the whole of the plant.

"But if you had a floating wave-powered factory that was ranging freely over the sea, that would overcome this second problem."

Meanwhile, Japan has plans to build an experimental plant to produce uranium for commercial use from seawater, the Natural Resources and Energy Agency announced in Tokyo.

Work is likely to start in 1982 and might cost well over £7 million.

If experiments are successful Japan could be producing usable uranium before 2000, the agency said.

Water Scheme OK

The Minister for the Environment has given the Kerry Co. Council a go ahead to take 12 million gallons of water a day from Lough Guitane, five miles out from Killarney. The project will cost several million pounds.

Under the scheme, water will be supplied to roughly one third of the county. Areas to benefit include Farranfore, Tralee, Killarney, Fenit, Castleisland and Scartaglen.

AKER JOINT VENTURE

Aran Energy and the Aker Group, Norway's leading engineering and shipbuilding company, have entered into a joint venture to market and assemble Norwegian offshore drilling equipment. Aran will have a 60% stake in the new company, the remaining being held by Aker.

In announcing the project, Aran's chief executive, Mr Michael Whelan, explained that the function of the company would be to find new markets for oilfield equipment manufactured by Aker and ultimately, when the orders start to come in, to manufacture and fabricate the equipment in Ireland.

Aran is presently having consultations with the IDA on possible locations but a definite start-up date for manufacture will not be known until the company has developed new markets for the products.

The obvious area for the joint venture would be the exploration blocks around the Irish coastline if and when oil is found there. The idea behind the venture though is that it captures a significant market among oil fields presently in production such as the North Sea. If oil fields are discovered off the Irish coast then the company would be in a position to supply them with equipment manufactured in Ireland.

This new development in offshore industry, according to Aran, will provide an Irish element capable of developing the engineering concepts needed to evaluate deep offshore production, which is required before some of the prospects that lie in great water depths can be explored.

NO BIDS YET FOR McNEILL

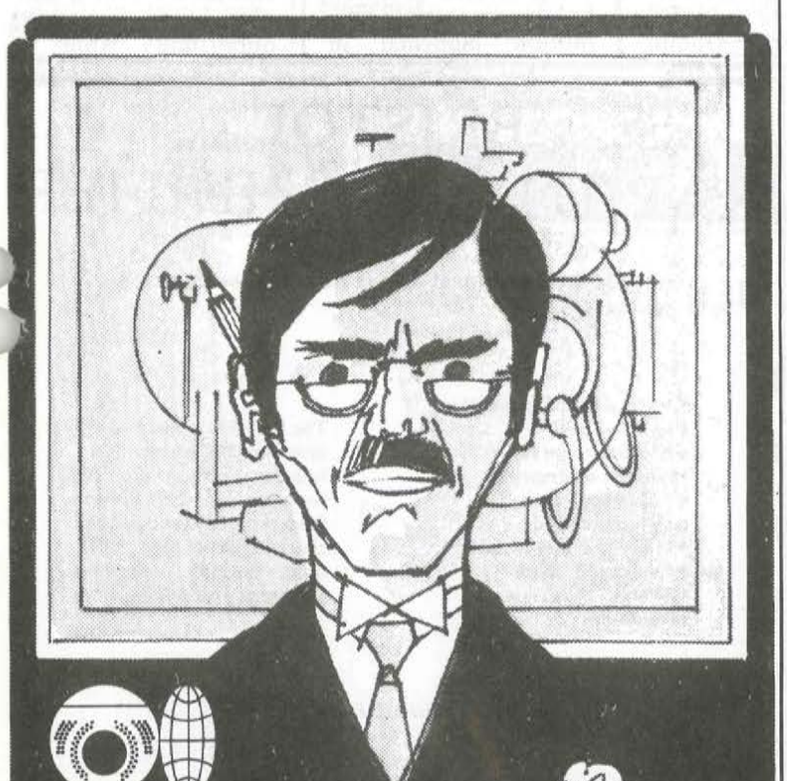
The receivers of the McNeill Group, the Northern Ireland based structural and concrete engineers, have, as yet, not received a single bid for the Group as a whole. However, the joint receivers, Mr William Fitch and Mr W. Ben Wilson say that they are in close consultation with a number of potential bidders who are interested in Smyth Mills, the Portadown Foundry, and Cacrete and Moracrete, concrete pipe manufacturers in Dublin. Ballinderry Concrete, a wholly owned subsidiary of the Group has not been put into receivership. It is engaged in flooring, amongst other activities, and its goodwill and certain other assets have been sold to Messrs W D Irwin & Sons.

To date the sale of Group assets has realised over £1m. but according to the receivers, this represents "merely a portion" of the company's interests and several large divisions remain to be sold.

Some people say we're old fashioned..

but if we were unscrupulous,
cared more about the profit margin
and cut a few corners, especially
in the quality of materials we use,
we could do better.
If we had more unskilled labour and fewer craftsmen
we could join the big league.
But then we tend to think
that the out-dated virtues of truthfulness
reliability and a job well done pay in the end
– even in the boiler business.
It's certainly worth tuppence
to find out why, when people say
we're old fashioned . . .

We agree!



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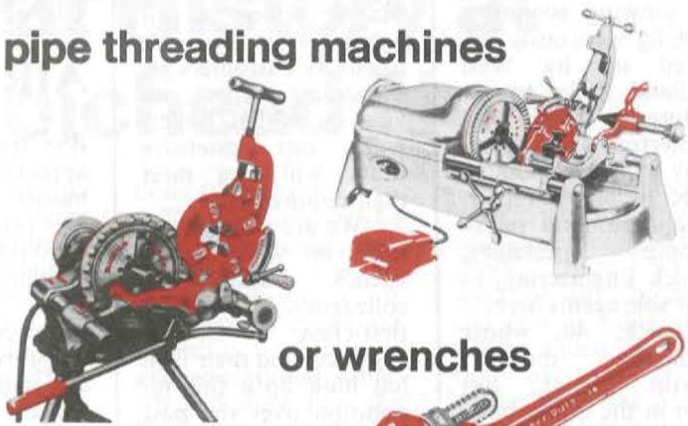

or wrenches

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or threaders

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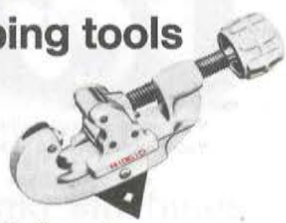

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IHVN NEWSDESK

RENICK TO SELL DANKS BOILERS

The potential for increased boiler sales in Ireland, Europe's fastest growing economy, is being vigorously followed up by West Midland boiler manufacturers, Danks of Netherton. The company has appointed boiler repair, installation and maintenance specialists, Renick Engineering, as their sole agents here.

Renick, 40, whose managing director, Martin Renick, has been in the boiler business for the past 40 years, operate from Frankfort, Dundrum Road, Dublin 14. They will be setting up a wholly-owned subsidiary, General Industrial and Marine Boilers Ltd., to handle the Danks' franchise.

Simon Bolitho, sales director of Danks, said: "We have been successfully supplying steam and hot water boilers to Ireland for many years, the majority designed for turf firing. Now, with General Industrial and Marine Boilers as our agents, we will be able to ensure customers get immediate expert advice on which boilers from our extensive range will best meet their requirements.

"We are delighted to team up with Martin Renick and his colleagues. They are first-class boiler engineers and their firm has built up a fine reputation over the past 20 years."

Danks of Netherton will be making its first public appearance here at the Irish Heating and Ventilating Exhibition (IHVEX) in April, when the company is expected to announce some important new orders.

BSS AGENTS FOR UNITED AIR COIL

BSS Ireland have been appointed sole distributors in Ireland for the full range of air conditioning units, air handling units, heating coils, cooling coils, spray coils and excess moisture eliminators, as manufactured by United Air Coil Ltd., Broadstairs, Kent.

Already they have received a large order for a new prestige Dublin retail store. United Air Coil can supply through BSS Ireland or Pulvertaft Ltd., Cork (wholly owned subsidiary of BSS) special air handling units manufactured to consulting engineers precise requirements, as well as the standard production units.

United Air Coil manufacture a large range of high quality heating and cooling coils suitable for the heating, ventilating and process industries.

HOLIDAY OFFER BY FLAIR

Consumer savings of up to £200 on the cost of a 1979 holiday are being offered in a new holiday incentive promotion launched in Ireland by the manufacturers of Flair shower and bathroom products.

The offer, which is available to persons purchasing shower cubicles, and will operate until 31 December 1979.

Operated through International Consumer Incentives Ltd., the range of consumer price reductions apply to holidays and cruises organised in Ireland by Joe Walsh Tours, and by a number of leading British tour operators, to destinations in Europe and North Africa.

According to Midland International's Group Marketing Manager, Colin Howes: "with foreign holiday travel increasing annually and the growing use of shower products in the home, the promotion provides consumers with a genuine cost-saving opportunity while si-

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multaneously assisting the trade to increase sales.''

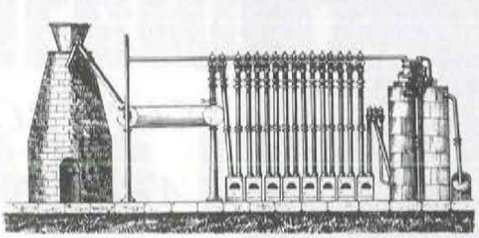
Further information: Midland International Ltd., Bailieborough, Co. Cavan. Tel: Bailieborough 820.

NEW FACTORY FOR AIRCROSSE

In a bid to increase output and pull back on delivery dates, Aircross Ltd., the Waterford based engineering firm, have moved to new premises in Butlerstown. The new plant is situated on a 4 1/2 acre site, four miles from Waterford City, just off the main Cork-Waterford road. Telephone number is 051-84295.

Set up 15 years ago by William Cobbe, the company manufacture a wide range of air compressors and ancilliary equipment for both the home and export market. The latter market is particularly bouyant and according to predictions by Cobbe, exports will increase by at least 50% in the new markets which have just been opened in Africa and North America.

Last year, the company introduced the new Ceccato range of low pressure die cast aluminium compressor pumps, which have since become market leaders; sales in the UK alone have increased by 46%. A further new series - the Silcrosse range of silenced compressors is currently in the process of being launched.



Illustrations of (above) the mid-nineteenth century peat distillation plant at Cill Beara, Co. Kildare and (opposite) an eighteenth century turf vendor.

Peat History at Droichead Nua

Bord na Mona are to start construction later this year on a national peat museum at their premises at Droichead Nua, Co. Kildare.

The theme of the new museum will be ''Ireland's peatland and peat'', Mr John Cooke, curator of the Bord's present collection and their technical information officer, said.

The museum will be open to the public, and, besides being a major tourist attraction, it will have an important scientific, historical and educational value. ''It will show how the bogs were formed over the past 10,000 years, their variety from the shallow bogs on the western seaboard to the great midland bogs, sometimes forty feet in depth, from which most of our commercial peat is won'', Mr Cooke added. A selection of those finds dating from the Stone Age to modern times which have been found will also be displayed in the new museum.

IHVN NEWSDESK

Pictured at the opening of the trade show with the Lord Mayor were Commercial Refrigeration directors (L-R) Dev Lowe, Mr Pat Power, Mayor of Waterford, Mr Pat Cummins, Ms Mary Bowman and Mr Tom Reid.

Enjoying the festivities at the trade show were (L-R) Mr and Mrs Reynolds, Total Refrigeration, Mr G. Oates, Total Refrigeration, Mrs Dunne, Mrs Duff, Mr T Duff, Pee Dee Refrigeration, Mr P Dunne, Pee Dee Refrigeration, Mrs Oates, and Mr P Jones and partner, Total Refrigeration.

Taking a pause in the evening's activities: (L-R) Mr and Mrs M Reynolds, Western Refrigeration, Mrs Horan, Mr J Horan, Reflex Refrigeration, Mr V Gibson, IHVN, Mrs Gibson, Mrs Nagle, Mr J Nagle, Reflex Refrigeration, Mrs Reynolds and Mr F Reynolds, Western Refrigeration.

Amongst the guests were: (L - R) Mr D Hennessey, Hennessey Refrigeration, Mrs Griffin, Mrs Parkinson, Mr J Parkinson, Consulting Engineer, Mr B Lacy, Lacy Refrigeration, Mr and Mrs M O'Reilly, Refrigeration Contractor, Mrs Lacy, Mrs O'Reilly, Mr K O'Reilly, Refrigeration Contractor, Mr B Griffin, Frescold Refrigeration and Mrs Hennessey.

More than 170 representatives of the Irish refrigeration industry attended a two day trade show held in early February in Waterford by Commercial Refrigeration. Guests assembled for a sherry reception on Saturday afternoon and had [illegible] the company's exhibit which included such brand names as Arneg, Dorin, Franger, Frigor, L'unite Hermetique, Coldelite, Icematic and Pegasus before going into dinner. On the Sunday, there was a further opportunity to visit the exhibition and the show ended with a champagne farewell in the early afternoon.

T.A. CONTROLS APPOINT BRENNAN

Brennan Controls Ltd. have been appointed sole distributor for controls manufactured by Tour and Andersson AB, Sweden.

The range offered covers all aspects of heating, ventilating, air conditioning and refrigeration control gear. Brennan Controls also design and make all control panels.

Besides electric and electronic controls, the company also offers a wide range of pneumatic systems. Included in their catalogue are:

Data centres; Building management automation systems; optimal start time controllers with adaptive analogue computer.

Anything from simple thermostats to full data logging central operation control and supervision systems are now available from Brennan Controls' new complex in Tallaght, Co. Dublin. Full commissioning and after-sales service is provided by another company within the Brennan group, Brennan Maintenance Services Ltd.

Further information: Brennan Group, 60 Cookstown Industrial Estate, Tallaght, Co. Dublin. Tel: 514711.

BRIEFLY

Nu-Aire (Ireland) Ltd., distributors of Nu-Aire heating, ventilating, air conditioning and air filtration systems, have moved to new offices at 23 St. Fintan's Road, Dublin 13. Telephone number is 323816.

THERMAL INSULATION SEMINAR

Photographed at the Construction Industry Federation seminar held recently in Dublin on "Thermal Insulation for Housing" were (L-R) Mr J Twomey, Department of the Environment, Mr M Greene, Construction Industry Federation, Mr H. Clyne, Institute of Industrial Research and Standards, Mr S Donleavy, Institute of Industrial Research and Standards and Mr E McKone, McKone Group.

The idea of introducing thermal insulation regulations was discussed some years ago, but it wasn't until August last that part of the regulations were introduced to cover insulation on roofs and floors. From July 1979, builders will be obliged to extend these to the insulation of external walls and intermediate floors. Required U valves then will be: roof not greater than 0.40 w/m^2°C, external walls 1.10 w/m^2°C, and external parts of the intermediate floors1.10 w/m^2°C and total 1.25 w/m^2°C.

In addition to the seminar, participants also were able to view an exhibit on thermal insulation products and systems from Concrete Products of Ireland Ltd., Fibreglass Ltd., Gypsum Industries Ltd., Moy Insulations Ltd. and Southern Chemicals Ltd.

SUCCESSFUL SEMINAR FOR HEVAC

More than 60 heating engineers and contractors attended the Hevac trade seminar held recently in the Royal Hibernian Hotel. Recent development in oil and gas burners and in cast iron boilers was the central theme of the seminar, and Mr Jack Mason, Field Sales Manager, Nu-Way Heating Plants, spoke on the many advances being made in gas and oil burners. His reference on natural gas burners was particularly appropriate as Hevac have commissioned natural gas burners on Chappe boilers at the new NET Plant at Marina Point in Cork. A presentation on the CM3 range of Chappe boilers by M. Branlard, Export Sales Manager for Chappe, followed.

Due to the success of the venture, Hevac intend to run a number of similar seminars throughout the year, including some in the provinces.

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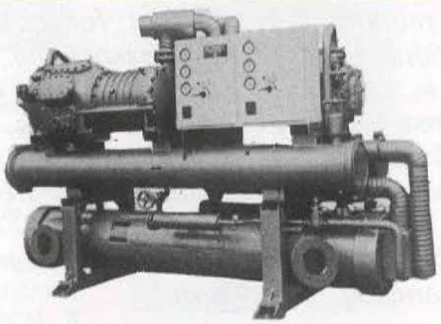
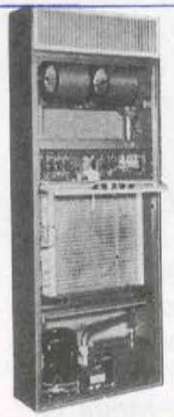
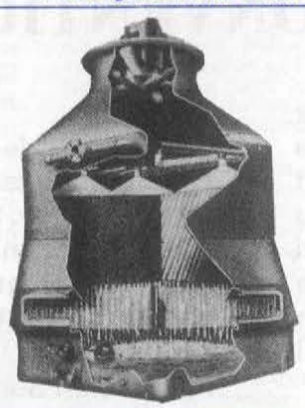


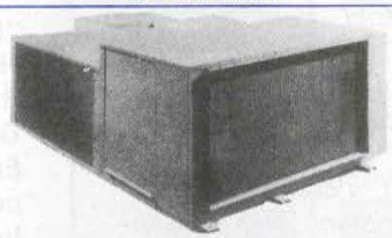
AC Duplex Aquachill Unit
Packaged Water Chiller.



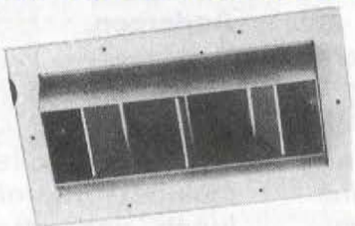
Vertical Air Cooled Package Unit
with Plenum



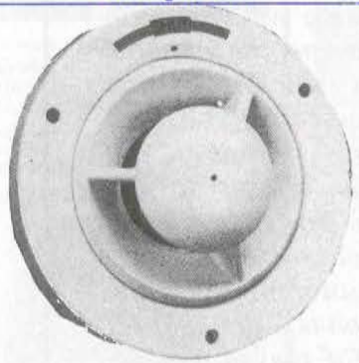
PN Type Water Cooling Tower
Capacity from 10, to 1000 G.P.M.



Roof Mounted Air Cooled
Packaged Unit



Drum Type Punkah Louvre



Type D Punkah Louvre.

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COVER STORY

IhVex '79 - Largest Exhibition Ever

More than double the size of its predecessor (60,000 sq. ft.), IhVex '79, which will be held from April 3 - 6th, will be the largest exhibition of its kind ever staged in Ireland. Moving from the Industries Hall in the main RDS complex to newer, more modern facilities at Simmonscourt Pavilion, the Show will include more than sixty exhibitors representing some three hundred companies engaged in the environmental industry. These firms will display a wide range of products and services to do with heating and ventilating, air conditioning, fuel conservation, environmental engineering and pollution control. Refrigeration - a new sector this year, is also well represented.

As in the past, a comprehensive publicity campaign has been devised to attract the attention of all possible trade and industrial visitors. Advertising will appear in trade magazines and the national press right up to Show time backed by showcards, posters, correspondence stamps and advertising slugs. Closer to the opening, tickets and information leaflets will be sent out in a special direct mail promotion, the highlight of which is a drawing for a 'free holiday for two in Greece' which will take place at the end of the exhibition.

The luncheon scheme, under which several hundred exhibition visitors were dined each day as guests of IhVex will again operate, and the names of those to be invited will be supplied by exhibitors on special lists provided by the organisers.

Several companies will be using IhVex to initiate new sales campaigns or launch new products and at the time of going to press, IHVN has learned that Hammond Refrigeration, for example, will be showing a new automatic ice cube machine which does not require plumbing or waste connections. H R Holfeld are featuring a new heating pump, Armstrong Autoparts - the new Vent-Axia 150 model, Euro Pumps - pressurisation units for hot or cold water applications, and Flakt - a new range of KDA air handling units.

The exhibition will also act as a focal point for a host of other activities associated with the main event such as the IDHE biennial convention, details of which are listed below.

Opening times are 11 a.m. to 6 p.m. daily with an extended opening on Wednesday, April 4th, to 9 p.m.

IDHE CONVENTION

"Environment and the Heating Engineer" is the theme of the Institute of Domestic Heating Engineers biennial convention which will be held in conjunction with IhVex on Wednesday, April 4th.

The assembly will be officially opened by J O'Leary, T D, Minister for State and Environment at 10 a.m., followed by papers on:

* Chimney Design: The influence of current and pending regulations regarding energy, conservation and the environment, presented by M Loud, Managing Director, Selkirk Metalbestos, London.
* Codes of Practice Affecting the Installation and Interlinking of Solid Fuel Appliances/Protection against Freezing of Central Heating Systems, presented by J Maher, Managing Director, and J Byrne, Technical Advisor, Coal Information Services Ltd.
* "Centralec" Electric Heating System, presented by D Cooney, ESB.
* Corrosion and Prevention in Central Heating Systems, presented by W Sheppard, Director, Corrosion Prevention Services.
* Heat Pumps and their Application in the Domestic Field presented by Jim Anderson, Managing Director, Walker Air Conditioning Ltd.

Registration fee is £10 and includes morning coffee, lunch and afternoon tea, entrance to lectures and printed copy of convention papers. Non-members are also welcome to attend and a special welcome is extended to country members.

Further information may be obtained by contacting Bill Penrice, Hon. Branch Secretary, IDHE, 46 Sweetmount Park, Dundrum, Dublin 14. Tel: 987722.

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PEOPLE

Cahir Boyle

Mr Cahir Boyle has recently been appointed General Manager of Europair (Ireland) Ltd. Prior to joining the company, Mr Boyle was at the University of Aston in Birmingham where he obtained a Masters degree in Business Administration. He was also with Recold and HRP. Also new to the company is Tony Kinsella who will be responsible for sales and marketing in Europair's fibreglass insulation division. Mr Kinsella previously worked with Monson Mitchell.

Paddy Kelly.

Clyde Systems have recently appointed Mr Paddy Kelly to their sales force. Prior to joining the company, Mr Kelly was with Hevac and Heatovent.

Due to a reorganisation of the management structure, Bord na Mona announces three new senior executive appointments. Mr Patrick MacEvilly becomes General Works Manager responsible for all works based activities and will report directly to the Managing Director. Mr Joe Hughes has been appointed Assistant General Works Manager (Briquettes) while Mr Sean Grogan becomes General Works Manager (Moss Peat Products).

Brendan Kilgallon, aged 28, has been promoted to Applications Manager at Walker Air Conditioning Ltd. Mr Kilgallon joined Walker in 1973 as Commissioning Engineer and three years later was promoted to Design Engineer with responsibility for systems.

In his new position, Mr Kilgallon will be responsible for quotations, estimates for both systems and Carlyle sales and refrigeration projectquotations - design and estimates. In-house technical training will also come under his supervision. He is an associated member of the Institute of Refrigeration and a member of ASHRAE.

H R Holfeld (Hydraulics) Ltd. announce that Mr Maurice Dore has been appointed Sales Manager with full responsibility for the home market. Mr Dore has 22 years of continuous

Maurice Dore

service with the Holfeld group of companies, not alone on sales but also on service and contract work.

The company has also appointed Pat O'Connor Technical Representative for the Dublin area. Mr O'Connor, who has been with Holfeld for five years, will have

Pat O'Connor.

special responsibility for the mechanical services side of the business.

Hevac have announced two new appointments in their sales department. Mr Des Prendergast is to be Sales Representative for the company's domestic heating products. Mr Prenderast

Des Prendergast

who will be responsible for North Dublin and North Leinster districts, was previously senior ser-

Noel Howard

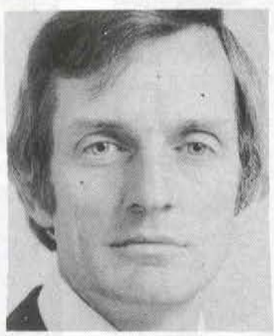
vice engineer before taking up the new position. Mr Noel Howard has been appointed Manager for the Munster area. He will be specialising in sales in industrial heating equipment and air conditioning.

Mr Clive Brownlee has been appointed Managing Director of Associated Irish Gases Ltd. A qualified accountant, he worked previously for the Guinness Group in Dublin and more re-

Clive Brownlee

cently as Group planning executive in London.

Kieran Flynn has joined the Board of Directors of Hilti (Ireland) Ltd, a member of the Hilti International Group. Mr Flynn was formally Chief Executive of the Abbey Group.



Tedcastles Oil Products have appointed Mr Enda Mulvey to the position of Sales Manager. He joined the company in 1965 and held the position of senior industrial representative prior to taking up his new appointment.

Mr Mulvey succeeds Mr Patrick Holden who was recently appointed Sales Manager for the Tedcastle Group whose interests include oil, coal, engineering, travel, warehousing and agriculture.

Casa Buades Launch Luxury Sink Fittings

Casa Buades have just launched a luxury range of sink mixers and sanitary fittings on the Irish market.

Already in extensive use on the Continent and in the USA, the chrome fittings can either be attached to the sinktop or the wall. A special feature, and one certainly of interest to the housewife, is the brush attachment on the Ducal model. Simply by turning on the taps and flipping a lever, the water flows through a three foot flexible piece of tubing to the brush-head, making it ideal for

washing dishes, vegetables, etc. A similar attachment (without the brush) is also available on the Zenit and Monomando Bua-Mix models for providing either a jet stream of water or a spray. All products carry a one year guarantee.

Further information on the complete range of products, as well as on the Juvel coloured (brown, mustard or green) round sink bowls and drainers, can be obtained from Rodney Bishop Ltd, 200a Rathfarnham Road, Dublin 6. (Tel: 904141).

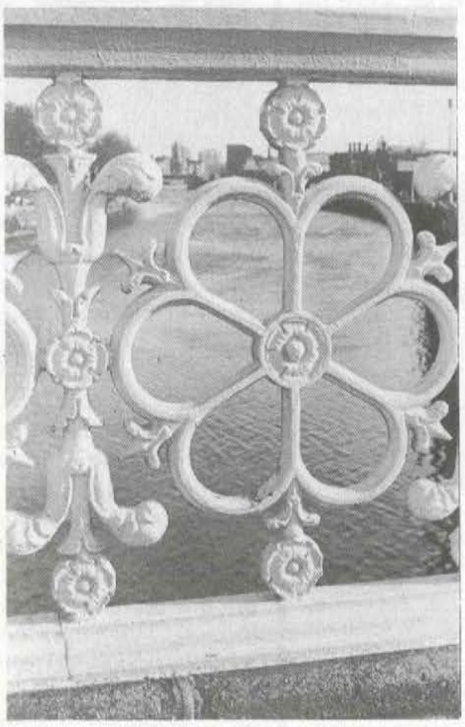
COMPANY PROFILE: Tonge & Taggart

From Lampstandards to Pipework...

Man has invented the computer, the telephone and the automobile. He's sent rockets to the Moon and ships to the bottom of the sea. But he's not been able to change the foundry. Not really. The principals are the same as when the first iron cannon was cast at the end of the 14th century. Even changes initiated by Abraham Darby, the man behind one of the first cast iron foundries - Coalbrookdale - in the British Isles in the early 1700's, haven't altered the industry radically. In fact, the process developed by John Thomas, one of Darby's ironworkers (i.e. casting iron by using fire dry sand and a mouldbox made in several sections from which patterns could be extracted) is still in use today.

Yet, despite the lack of modernisation in the industry as a whole, Tonge and Taggart, formed in 1869 making it one of the oldest cast iron foundries in the country, remains healthy. Turnover last year was up more than 20%, and, while the exact figures are not available, they are reportedly in excess of £2m. The company, part of the TMG Group since 1972, employs a staff of more than 160, exports 10% of their pipes and fittings to Nigeria, Kuwait, Iraq, Abu Dhubai, amongst others, and are currently quoting a three month delivery period on specially made products.

How do Tonge & Taggart do it? What's their secret? A "dyed-in-the-wool" marketing man would be quick to say "top quality", "keen prices", and "good selling techniques", and he'd undoubtedly be right. The company though, and the entire foundry business for that matter, is more than a string of a salesman's cliques. It's a way of life and has been for most of its employees for generations. "It's unique in many respects", Ciaran O'Donovan, Tonge and Taggart's Commercial Manager, says. "There is none of the mobility one comes to expect in other industries. These people come into the foundry as their grandfathers, fathers, uncles and brothers before them did."



Part of the intricate, cast iron design work on Heuston Station

And what they find is neither glamerous, easy nor clean. By it's very nature, it can't be. "Sure, isn't it like building little sand castles all day" a cynic would say and he wouldn't be far wrong. The "sand castle" process starts initially with either a sample (a broken item or even one with a part missing will do), a drawing or a detailed specification. This is then passed to the drawing room where a pattern (usually in wood) is made. Once built, the pattern is sent to the shop floor, filled with sand and an impression taken. If the item is a pipe, for example, a core piece made of hard baked sand is floated or balanced over the impression and the metal (at temperatures ranging from 1200 to 1400 degrees C) is then ladled into the moulding box and left to set. Times vary depending upon the size of the item; larger pipes needing up to 8 - 12 hours, while the 72" dia pipe Tonge and Taggart completed recently took several days. Smaller items like flanges, traps or gullies take only two or three minutes and it's nothing to make 300 boxes a day. A sister company in Waterford though has a completely automatic system which produces close to 300 boxes an hour.

The item now set and the moulds removed, the part goes into a machine which shot blasts any loose sand. This is followed by a fettler who chips away remaining pieces of metal which might have clung to the jointing. The pipe is now ready for hydraulic testing to comply with British, American or Irish standards. Assuming the pipe doesn't leak, it then moves to the machine shop where it is drilled to the required specifications and finally dipped to protect it from rusting.

"It's not an easy job," O'Donovan repeats. "The automatic system devised by the Swedes has, admittedly, speeded up the casting process and taken a lot of the backwork and the dirt out of the foundry. But it's only practical on standard jobs. It hasn't alleviated or radically changed the work process for larger pipes or those fittings which have unusual bends, tees or angles." Environmental regulations are improving though and in the States, laws have

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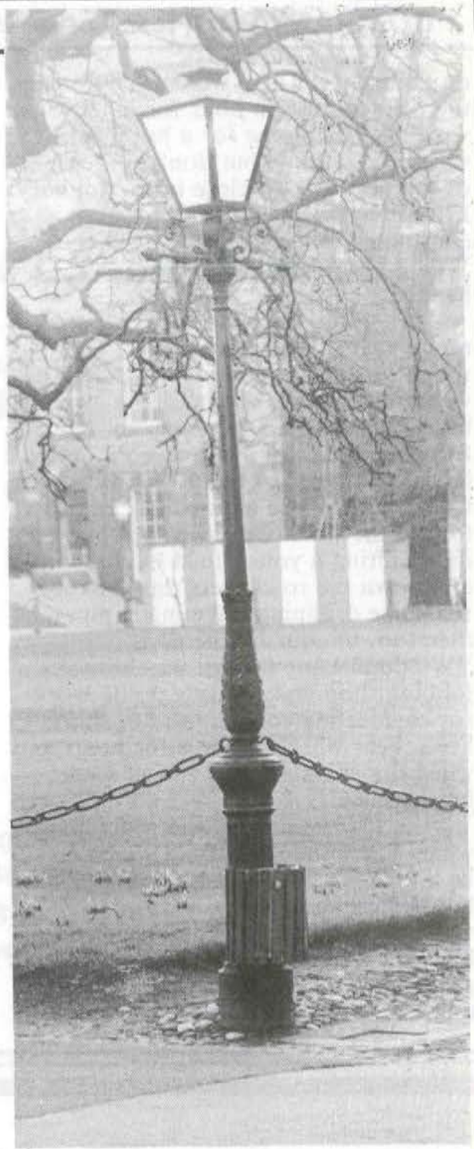
become so stringent that factories have been closing at the rate of two a day (in the UK at one a week) because they haven't been able to keep up with the requirements. "Last year alone" O'Donovan notes "we spent £1/4m in anticipation of more stringent rulings which included a dust extraction system, improved canteen facilities, heating, etc." A fair portion of that also went on safety equipment; i.e. goggles, hard hats, boots with steel toe caps and soles which won't burn, asbestos aprons for "casters" and so on. "But we found the men won't wear them" O'Donovan adds, "especially the clothing. We've managed to write it into the contract of our newer employees, but the older ones just don't want to know." (That's true," an older employee explained. "In principal they're a fine idea. When the metal sparks though, it often flys into your shirt. By the time you've unbuttoned it, you've been burnt. Without the apron or the protective shirt, you can brush them off immediately.")

For the foundry newcomer, the choice of job is largely dependent upon his particular family's background. "I started as a pattern maker," Arthur Tonge, who is only distantly related to the company's former owners, says "back in '37 just as my father and my uncle did before me." For those opting for the craftman's position, there is a four year apprenticeship - the first being spent at an AnCO sponsored school, the remaining three in on-the-job training in the foundry. The lad deciding to become a general labourer, who performs such tasks as shovelling sand, or working the moulding machine, the job hieracy is very clearly defined. A labourer is a labourer and a craftsman a craftsman and ne'er the twain shall meet. Without an apprenticeship, the general labourer has little possibility of rising above his initial position.

Work starts in the foundry at 8 in the morning with a 10 minute rest period every hour, a 1/4 hour tea break in the morning, a 1/2 hour for lunch and shut-down at 4:30. It's a five day week



A lamp standard in Trinity College.

and a semi-skilled person has a basic wage of £57 a week, £65 for the craftsman. A bonus scheme is in operation so that wages in effect are well above those figures.

"Things certainly are better in the foundry now than when I started," Tonge recalls. "I remember I started at 10 shillings a week then, and it wasn't until I'd completed my apprenticeship (seven years in those days) that I received £4.10. And we had to work a 48 hour week to get that; 8 - 5.30 Monday through Friday and 8 - 12.30

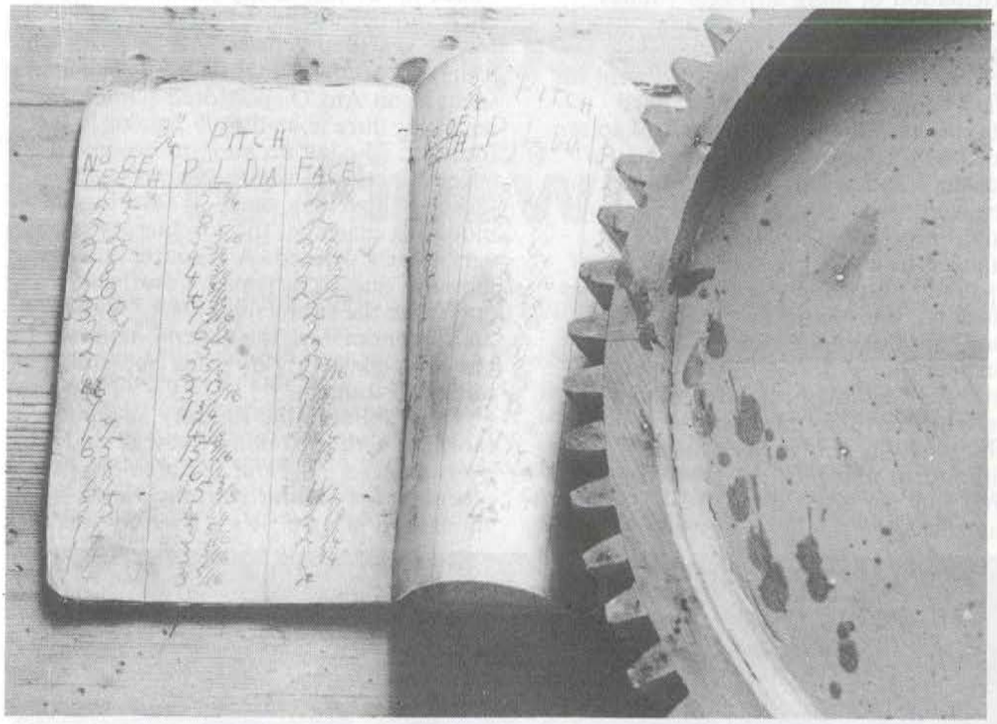
Left: A mould box being mechanically filled with cast iron.

COMPANY PROFILE: Tonge & Taggart

on Saturdays. There weren't any breaks then either, just an hour for lunch when we'd all cycle home for a hot meal. It wasn't much time but don't forget most of the people lived close to the foundry. I lived in Ranelagh and that was considered a "long way away" from Windmill Lane where the foundry was located.

"Yet, those were the days," he reminisces. "We worked hard. There weren't as many machines or cranes as we have now. We did most things by hand. We dragged the boxes to the furnaces and back again to cool, and we ladled the metal by hand. We didn't use C02 sand in those days either. In order to give the sand body, we used horse dung, hiring a young fella to chase up and down the road every day looking for horse droppings. We made pipes then too, of course," he adds. "Windmill Lane though was basically a jobbing shop and we were doing work for engineering companies; i.e. ship keels, gear wheels, pumps for boats and when the war started, we even made hatchet heads.

"But it's the people, the characters, which made the foundry. There used to be a fella who thought he was Napoleon and another who came to work every day dressed in a suit and a bowler hat. The horses we had never did get used to him," Tonge laughs. "And there were the social activities - the yearly dance and a day's outing each summer to Wicklow, Ashford or thereabouts. It was a close-knit community. Fellows palled around with one another and there was a lot of intermarriage; someone's brother marrying a workmate's sister. It was a good life. It still is. But I do miss the characters and the things we used to get up to - like sending the new lad up to the machine shop to collect glass nails or asking him...



A page from an old gear wheel specification book.

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THE LAW AND BUILDING SERVICES DESIGN

Since the beginning of the State in 1922 the Acts of the Oireachtas and the various Statutory Orders have contained many references to building services. Gathering this information together in one document was the difficult task I set Ben Costelloe as a project in this third year as a diploma student of environmental engineering at the College of Technology, Bolton Street.

As you will see, the report he completed is an excellent collection of the relevant legislation and regulations affecting a broad range of building services in the Republic and will be of immense value to the practicing engineer, architect and technician.

Ben received his Certificate with Distinction in environmental engineering in June 1975. Instead of continuing his studies immediately, he went 'out for a year' to gain experience in consulting engineers offices in Dublin and London. In September, 1976, he returned to college and obtained his Diploma with Distinction the following year. The maturity he gained while working was indicated in the quality of his project work. Subsequent to leaving college, Ben has been employed by one of the larger consulting engineering practices in Dublin while continuing his studies part-time.

Don Byrne, CEng, MCIBS, Lecturer in Environmental Engineering, College of Technology, Bolton Street.

A Compilation of the Legislation and Regulations Affecting Building Services Design, by Ben Costelloe

(Diploma Environmental Engineering) Building Services Engineer, Varming Mulcahy Reilly Associates, Consulting Engineers, Dublin.

INTRODUCTION

Acknowledgements

Grateful thanks is due to Don Byrne for his help and advice. I would also like to thank the Librarians at Bolton Street College of Technology and The Information Centre, Capel Street, on whose premises this document was compiled.

The Law and Building Services Design CONTD.....

Information was extracted from the following in compiling this report:—

1. The Acts and Bills of the Oireachtas 1922-1978.
2. The Statutory Instruments, 1922-1978.
3. The Corporation of Dublin; Bye-Laws with respect to the Construction of Buildings (June 1949).
4. Corporation of Dublin; Places of Public Resort, Protection from Fire (March 1934).
5. Dublin Corporation, Waterworks Regulations (December 1975).
6. Draft Building Regulations (November 1976).
7. Irish Standards Handbook (1975).
8. Care of the Aged — Government Report (1968).
9. Fire Protection Standards — Department of Local Government (March 1967).
10. Fire Protection for Hotels — Department of Local Government (January 1966).
11. The Reports of the Joint Committee on the Secondary Legislation of the European Communities.

The Regulations and Standards which refer to a specific service, e.g., fire protection, have been grouped together and appear in the order listed above.

While the Acts themselves rarely specify quantities they often contain the clause "The Minister is empowered under this Act to make regulations governing . . ." These Statutory Instruments form the body of legally binding national regulations are the basis of this report. On the other hand the Standards of the Department of Local Government are in the nature of recommendations and are not, of course, legally binding in theory. However, they are primarily intended as a handbook fo fire officers and as such may become binding in practice.

The Bye-Laws of Dublin Corporation have provided a comprehensive set of rules for traditional building construction prior to the publication of the Draft Building Regulations in November, 1976. When these regulations finally become law they may differ in detail from those published in draft form. Nevertheless extracts are included in this report for the purposes of completion. The new regulations will, I understand, repeal the existing building bye-laws of the Local Authorities.

Finally, a few words about the extracts themselves. Much of the information available is in legal technical terms, often extremely detailed and qualified to five or six degrees, all of which makes the reading of these regulations a tedious job. In an attempt to make this information more digestible, I have paraphrased certain items and included only those circumstances which seemed to me most common. In other areas the relevant extract itself is quoted. For this reason the regulations themselves should be consulted for the exact circumstances in which they apply. To this end, the section and subsection from which the extracts have been taken are indicated. In certain cases paraphrasing the regulations has meant simply omitting extreme qualifications and circumstances in other cases, in particular with that section dealing with sound transmission, it has meant an interpretation of the regulations on my part. The report is, therefore, no substitute for the regulations themselves.

With the exception of the Draft Building Regulations all other regulations give units in the Imperial System. The metric equivalent, is my own conversion, and is given after the Imperial unit in each case. The Waterworks Regulations of Dublin Corporation, 1975 Edition, give the [illegible] Imperial equivalent in brackets, these [illegible] given.

HEATING, VENTILATION AND HUMIDITY

HEATING

Office Premises Act 1958 No. 3.

10-(I) A "reasonable" temperature must be maintained; the use of heaters which give off injurious or offensive fumes is prohibited.

Factories Act 1955 No. 10.

12. In every workroom in which work is done sitting or does not involve serious physical effort, a temperature of not less than 60 degrees F (15.5 degrees C.) shall be maintained after the first hour of occupation. At least one thermometer must be provided and maintained in a suitable position in each work room. Generally a "reasonable" temperature must be maintained in each workroom. No heater which gives off injurious or offensive fumes shall be used.

Statutory Instrument (hereafter referred to as S.I.) No. 31, 1959, Office Premises (Minimum temperature in workrooms and Cloakrooms) Regulation 1959.

(a) the temperature of every room which is or is part of an office and which is either a room in which persons are employed or a cloakroom to be not less than 63 degrees F (17.2 degrees C).

(b) the temperature of 63 degrees F is to be attained within one hour after the commencement of work."

Note This order would seem to be inadequate insofar as it makes no reference to the provision of thermometers or to a more complete definition of room temperature.

Shops and Conditions of Employment Act 1938 No. 4.

55-(I)-(b) "suitable and sufficient means shall be provided to maintain a reasonable temperature and a reasonable temperature shall be maintained."

Draft Building Regulations 1976
F10(2) A space heating appliance of "not less than 2 kW per hour"(?)"
(3) shall be provided in the living room of every dwelling and also in one other "habitable room", in the case of a dwelling having three or more "habitable rooms" in which an electricity supply is not available.

S.I. No. 32 1976 Factories (manufacture of lead compounds) Regulation 1976.

19-(I)(f) "The canteen of a factory to which these regulations apply shall be "provided with effective means for securing and maintaining a temperature of not less than 15 degrees Celsius during meal times."

SI No. 272 1975 Factories (Wool and Hair Processing) Regulations 1975

"The temperature of any room in which the sorting, willowing or combing of wool or hair is carried on shall not, at any time during working hours, be less than 10 degrees Celsius."

Safety in Industry Bill 1978.

14. This Bill proposes to amend and update the Factories Act (1955). It repeats the previous requirements of the Factories Act with regard to temperature, i.e. "provision shall be made for securing and maintaining a reasonable temperature in each workroom"; however it adds that no method shall be used which results in the escape of fumes or constitutes a fire hazard.

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VENTILATION AND HUMIDITY

Office Premises Act 1958 No. 3.

II-(I) "Effective and suitable provision shall be made for securing and maintaining by the circulation of fresh air in each room the adequate ventilation of the room and for preventing harmful draughts".

Factories Act 1955 No. 10.

II-(2) A minimum of 400 ft^3 of space is required for each person
II-(7) employed in a workroom. For calculation purposes space
II-(8) above 14 ft. is discounted and space in galleries is not considered...A notice, stating the maximum of persons who may be employed in any workroom, must be displayed.

13-(I) "Effective and suitable" ventilation shall be maintained in all work rooms by the circulation of fresh air; Ventilation must also be provided to "render harmless" all fumes, dust and other impurities that may be injurious to health.

17-(I) (b) "Sanitary conveniences shall not communicate with any workroom except through the open air or through an intervening ventilated space".

63-(2) Humidity.

The following conditions shall be observed in factories where artificial humidity is provided:
(I) Two hygrometers one in the centre and one mounted on a wall of the workroom shall be provided and readings taken twice daily and records of these readings kept adjacent to the hygrometers.
(II) There shall be no artificial humidification where the reading of the wet bulb thermometer exceeds 72.5 degrees F (22.5 degrees C) or where the spinning of cotton or merino or cashmere (by French or dry process) or the spinning or combing of wool (by that process) is carried on and the wet bulb thermometer exceeds 80 degrees F (26.5 degrees C).
(III) There shall be no artificial humidification where the difference between the readings of the wet and dry bulb thermometer is less than indicated on the table of humidity, reproduced herewith. See chart.
(IV) Any water which is used for humidification and which absorbs from "acid solution of permanganate of potash in four hours at 60 degrees F (15.5 degrees C) more than half a gramme of oxygen per gallon of water shall be deemed to be liable to cause injury to the health of the persons employed".
(V) Where notice has been given in writing to the Minister that a difference of at least 4 degrees F (2.2 degrees C) will be maintained between the wet and dry bulb thermometers then daily readings of the wet and dry bulbs need not be taken nor need the daily records be kept adjacent to the thermometers.

SECOND SCHEDULE.

TABLE OF HUMIDITY.

I. Dry Bulb Thermometer Readings. Degrees Fahrenheit.	II. Wet Bulb Thermometer Readings. Degrees Fahrenheit.
50	48
51	49
52	50
53	51
54	52
55	53
56	54
57	55
58	56
59	57
60	58
61	59
62	60
63	61
64	62
65	63
66	64
67	65
68	66
69	67
70	68
71	68·5
72	69
73	70
74	70·5
75	71·5
76	72
77	73
78	73·5
79	74·5
80	75·5
81	76
82	76·5
83	77·5
84	78
85	79
86	80

Shops and Conditions of Employment Act 1938 No. 4.
55-(I)-(9) Suitable and sufficient means of ventilation shall be provided and suitable and sufficient ventilation shall be maintained in every part of the shop.

SI No. 30 1959 Office Premises (Overcrowding) Regulations 1959.
"...fifty square feet (4.5m^2) shall be the minimum amount of floor space allowed for every person employed in any room".

Note: This provision would seem to be inadequate in that it takes no account of ceiling heights and of the area or volume occupied by furniture and equipment.

SI No. 32 1959 Office Premises (Sanitary Convenience) Regulations 1959.
5-(I) "The sanitary convenience shall be ventilated directly to the outer atmosphere or by means of a suitable and effective method of Mechanical Ventilation".
SI No. 160 1958 Factories Act 1955 (Hygrometers) Regulations 1958.
This regulation deals with the standard of design of the hygrometer and with the official structure of the monthly record form required to be kept by each factory to which the Act applies. (See previous paragraphs).
SI No. 171 1956.
6-(I) "Every sanitary convenience shall be sufficiently ventilated".

Corporation of Dublin (hereafter referred to as CD) Bye-Laws for the Construction of Buildings 1949.

75-(I) Every habitable room and every room used as an office shall have at least one window opening into the open air. The area of the window shall be at least 1/10th of the floor area. The top of the opening shall be at least 6' (1.8 m) above the floor level.
75(4) Mechanical Ventilation: Where a room is used as an office and cannot be adequately naturally ventilated, fresh air shall be supplied to all parts of the room at a rate of 750 ft^3 (21m^3) per occupant or per 50 ft^2 (4.5m^2) of floor area whichever would provide the greater ventilation.
75(5) Vents (applicable to habitable rooms or offices).
Unless a room is provided with Mechanical Ventilation as detailed above, or is fitted with a fireplace flue not less than 7 1/2" (180 mm) in all directions it shall be provided with a vent as follows:-
(I) Vented directly to the open air not less than 50 sq. inches. (180 mm X 180 mm).
(II) Vented directly to a lobby or corridor which is vented directly to the open air not less than 100 sq. inches (360 mm X 180 mm).
75-(7) Every gas geyser shall be "adequately ventilated" to the open air.
76 Every habitable room or office shall have a ceiling the area of

which is not less than 2/3 the area of the floor and the height of the room which is not less than 8 ft. (2.4 m). No part of the ceiling shall be less than 6 ft. (1.8 m) from the floor.

Courtyard:
77 (I) If the length or breadth of a court does not exceed height from the ceiling of the ground storey to the top of the parapet or eaves then an opening to ensure adequate ventilation must be provided at the base of the building communicating with the outside air.
(II) The width from a window to the opposite wall of a court must be at least half the distance from the window cill to the parapet or eaves.
These regulations apply to buildings only where all the windows of a habitable room open onto a court.
78 Every new house shall have an open space immediately at the rear or not less than 150 sq. ft ($14m^2$).

Draft Building Regulations - 1976 (See App. No. 6).
These regulations (in this section) apply to all buildings other than those which come under the following Acts:-
L.1. (a) The Factories Act No. 10 1955, (b) The Office Premises Act No. 3 1958. (c) The Shops and Conditions of Employment Act Notes of 1938.
L.6 Kitchens: Kitchens in dwellings shall have Mechanical Ventilation providing a minimum of 6 A/C per hour or a means of ventilation with an opening area of not less than 1/20th of the floor area.
L.7. (I) Habitable rooms shall have an openable area of 1/20th of the floor area or Mechanical Ventilation to give 2 A/C.
(II) Every bedroom unless fitted with a chimney or flue shall be provided with a permanent ventilation opening which is 6500 mm^2 in area (235 mm to 235 mm) and which opens to the external air or to a ventilated lobby.
(III) Where habitable rooms open into a conservatory the conservatory shall have openable windows whose area is not less than 1/20th of the sum of the area of the conservatory and such habitable room floors.
L.8. Every bathroom, washroom or WC shall be provided with a ventilator of openable area 1/20th of the floor or $.1m^2$ (330 X 330) whichever is greater or by a system of Mechanical Ventilation which provides -
(I) 2 A/C for bathrooms and washrooms
(II) 3 A/C for WC's.

Toilet Extract from Flats.
L.8.(2) (b) "Where a Mechanical Ventilation system serves water closet compartments in more than one dwelling it shall be separate from any other ventilation system in that building and shall have a duplicate motor".
L.8.(3) Ventilated lobbies to WC's.
These shall be provided with the following:-
(I) A ventilator of $.1m^2$ or permanent ventilation of 6500 mm^2.
(II) Mechanical ventilation to 2A/C.
L.9-(I) Lifts.
Lift wells shall have permanent ventilation of 6500 mm^2; lift motor rooms shall have permanent ventilation of 2 X 6500 mm^2 or mechanically 3 A/C.
L.11 Stairways. Enclosed passages, landings or stairways which provide common access to two or more dwellings shall be ventilated as follows:-

(I) With a ventilator having an openable area of not less than 1/100th of the floor area, or
(II) A permanent ventilation opening of 6500 mm^2 for each 21 m^3 or
(III) Mechanically I A/C.
Where the enclosure comprises doorways at opposite ends opening directly to the open air regulation L.11 is not compulsory.

L.12. Storage Rooms.
Where the floor area exceeds 3.7 m^2 storage rooms shall be provided with a ventilator with an opening area of not less than 6500mm^2 for every 21m^3 or mechanically I A/C.
L.13. Garages.
Garages which do not exceed 370m^2 shall be ventilated as follows:-
(I) Those which do not exceed 40m^2 by two permanent openings having an area of not less than 6500mm^2 or mechanically 1 A/C.
(II) Those exceeding 40m^2 shall be similarly ventilated except the openings shall be placed to provide maximum flow of air and two such openings shall be provided for each 21 m^3 of garage or mechanically 3 A/C.
L.14 Car Parks.
Ground and above ground parks:
(3) Car Parks
(a) Two permanent ventilation openings on opposite walls of the storey of area not less than 1/40th of the floor area of the storey, or
(b) Mechanically 8 A/C.

(4) Commercial and Public Service Vehicle Parks.
(a) Two permanent ventilation openings on opposite walls of the storey of area not less than 1/80th of the floor area of the storey, or
(b) Mechanically 4 A/C.
Basement Parks.
(5) Car Parks
(a) Two mechanical systems of 4 A/C each, or
(b) One mechanical system of 4 A/C with two permanent ventilation openings situated on opposite sides of the storey with a cross sectional area of 1/80th of the floor area of the storey.
(II) Commercial and Public Service Vehicle Parks.
(a) Two mechanical systems of 2 A/C each or
(b) One mechanical system of 2 A/C with two permanent ventilation openings situated on opposite sides of the storey of area of the floor area of the storey.

Note: Where two systems of Mechanical Ventilation above are used an audible or visible warning signal shall operate in the event of the failure of both systems; furthermore, at the entrance to such a Car Park, a notice of the following type shall be provided.

DANGER

SWITCH OFF YOUR ENGINE WHEN WARNING SIGNAL SHOWS/SOUNDS

All Mechanical Ventilation to Car Parks shall -
(I) Be independent.
(II) Provide one exhaust air outlet for every 190m^2 of floor area served by system.
(III) Extract 2/3 of the exhaust air from outlets not more than 600 mm above the level of the floor.
L.15. Laundries.
A laundry shared in common by two or more dwellings shall be provided with permanent ventilation openings of area not less than 1/20th of the floor or mechanically 10 A/C both in addition to a permanent ventilation opening of not less than 48,000mm^2 for every 21 m^3 of the room.

SI No. 272, 1975 Factories (Wool and Hair Processing). Regulations, 1975.
II-(I) (2) (3) (4) This regulation prescribes measures designed to protect workers from contracting anthrax. To this end it declares that certain types of wool or hair shall not be opened from bales unless an "efficient opening screen which is fitted with a mechanical exhaust draught is beneath the bales." The opening screen shall have a minimum area and exhaust velocity of 1.1 m^2 and 30.5 m/minute (wool or hair) or 90 m/minute (horsehair).
Section 13 describes in detail the technical specification for a dust extraction funnel and shaft to be fitted to all sorting boards.

Safety in Industry Bill 1978.
Removal of Fumes - Section 20.

Any process which gives off dust or fumes "to such an extent as to be likely to be injurious or offensive to the persons employed' shall where practical be fitted with "exhaust appliances...as near as possible to the point of origin of the dust or fume".

NEW PRODUCTS

Watford Electric's new range of fuses.

WATFORD ENTER INDUSTRIAL MARKET

Watford Electric of Higham Ferrers has entered the industrial fuse-link market with a range which embraces industrial (up to 800A, 415V), motor circuit (up to 200A, 415V), and heating and lighting fuses (up to 30A, 240V). The fuses are ASTA certified and conform to BS88, CEGB and Lloyd's Register of Shipping.

The new product is added to Watford's catalogue of control gear, and enables the company to supply fuses for its UFSB fuse-switches now offering switch and fuse as a package deal. To this end, the popular size of fuse are blister-packed in sets of three units to save customers' time when ordering, handling and controlling stock.

Many of the Watford fuses are physically smaller than others currently available and have a low energy consumption, features which contribute to cool running with consequently reduced operating cost and improved natural ventilation.

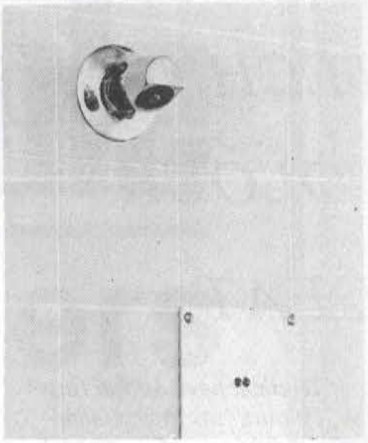
Further information: Bur-Mon Engineering Ltd., Larch Grove, 80 Sandford Road, Ranelagh, Dublin 6. Tel: 974192.

ANTI-VANDAL SHOWER ROSE

An entirely new Shower Rose has been designed by Meynell Valves Ltd of Bushbury, Wolverhampton, which will fit snugly into a shower installation, but at the same time is difficult to vandalise.

The type NV, as it will be known, has an attractive design and is highly efficient, as it will give an even spread of water through its carefully constructed orifices. These are sited so as to be easily cleaned.

The type NV Rose has been installed on numerous applications with Safemix Thermostatic Showers and also Blendamix Showers, where it has been satisfactorily tested over a period of time at many different installations.



Anti-Vandal Shower Rose from Meynell Valves.

It is ideally suited for hospitals, schools, saunas, public swimming pools, hotels and private homes, where its elegance and usefulness, together with its anti-vandal properties, are of considerable interest to discerning architects, design engineers and specifiers.

Further Information: Wyse and Ballentine Ltd., 62 Woodbine Park, Raheny, Dublin 5. (Tel: 317553).

BTR PRODUCTS NOW AVAILABLE IN DUBLIN

BTR Silvertown Pipeline Services are now to be marketed in Ireland by Tilley and Barrett (Ireland) Ltd., a wholly owned subsidiary of McNicholas Engineering. BTR provide a complete range of products and equipment for the repair and maintenance of pipelines, specialising in a number of systems ideally suited for gas engineers.

Of particular interest to IHVN readers is the BTR/Readyseal System which is suitable not only for standard leak work, but also for emergency repairs, monitoring of leakage from specific joints and for repairs to most types of special fittings. The Readyseal system does not require any moulds, mixing equipment or special tools; all the materials needed are contained in each kit which are available to fit all types of joint up to 36" dia. Special kits to meet customers particular requirements are also available. The system is supplied in two versions; one for low pressure joints (up to 5 psi), the other for medium pressure joints (up to 30 psi).

The actual sealing operation is quite simple. The joint is cleaned to a metal finish, and the collar fitted into position. The pipe is then given a coat of primer and the sealing material is mixed in its own bag. This is split and used as a tray to ensure thorough impregnation of the felt. The felt in turn is stretched around the joint with the vent positioned above the gap in the collar. After making the overlap, the repair is wrapped with an elastic polyurethane film. When the resin has cured, the repair can be tested and the vent plugged.

For further information, contact Tilley and Barrett (Ireland) Ltd., Kestral House, Clanwilliam Court, Dublin 2. Tel: 680424.

NEW PRODUCTS

TECHNI – COLOUR HEAT

Faral Tropical have added four new colours to their Italian-made range of diecast aluminium radiators – Pale Mustard, Mushroom, Gingerbread Brown and Bitter Chocolate.

They are now available on minimum orders of 1,000 sections, with delivery within 10 weeks. Sections in any of the new colours will be priced 30p above the price of Faral Tropical standard ivory colour. Faral Tropical radiators in gold colour continue to be available for immediate delivery, priced 10p per section above standard ivory.

Further colours are to be added to the Faral Tropical range, and the company is able to supply special orders for radiators in literally any colour. Quotations for these special orders will be provided on request.

Further information: Bob Graham, 10 Upr. Newtownards Rd., Belfast BT4 3EL. Tel: 665846.

The new colour range of Faral Tropical radiators: Bitter Chocolate, Gingerbread Brown, Mushroom, Pale Mustard, and the standard Ivory.

RESTYLED SHERATON BATH

Re-styled Sheraton 2 from Armitage Shanks.

Armitage Shanks have introduced a re-styled Sheraton 2 acrylic bath to replace the earlier Sheraton. It remains a shower bath, with a slip-resistant area at the waste end - the modified dimpled base making bathing and showering equally convenient.

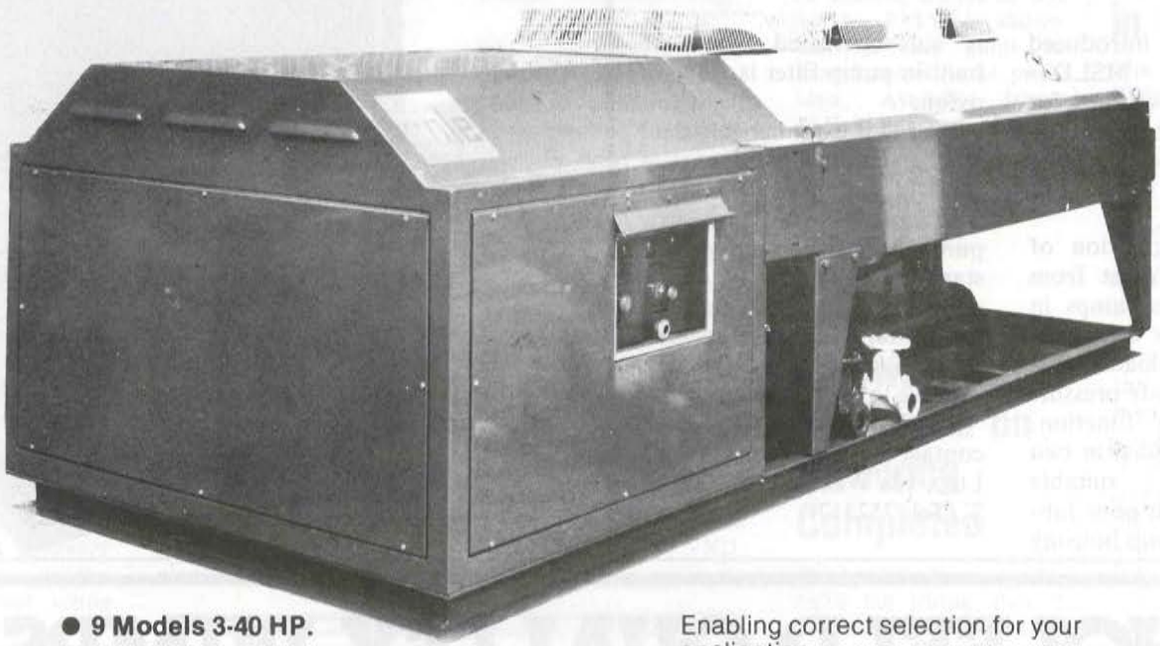
The semi luxury, fully reinforced bath is made from acrylic sheet and is available in nine colours and white. The metal support frame is glassfibre-bonded to the underside, and forms a secure cradle where the legs are screwed to the base board and in the floor fixing position. Build-in wall brackets which attach to the frame on the long side of the bath, can be screwed to the wall and tiled over to ensure a firm "bath to wall" fix.

Sheraton 2 has twin handgrips, and in addition dual soap recesses, a sloping back with angled neck rest area, and wide flat edges. A completely re-styled and curved front panel forms a toe recess running the length of the bath. Overall dimensions are 1700 X 800 mm and an internal depth of 387 mm at the waste end.

For further information and technical specification and dimensions, contact Armitage Shanks Ireland Ltd., South Quay, Arklow. (Tel: 0402-2415).

c.a.x. cole

air cooled chillers



● **9 Models 3-40 HP.**	Enabling correct selection for your application.
● **Weatherproof**	Suitable for external use saving valuable floor space.
● **All components easily accessible.**	For speedy maintenance at minimum cost.
● **U.K. designed and manufactured**	Giving quick access to spares and service.
● **High ambient compressor.**	Suitable for operation in air temperatures up to 110°F (43°C).
● **Complete with all operating and safety controls.**	Installation costs kept to a minimum.
● **Easily adjustable temperature range from 15°C to — 7°C.**	Providing flexibility of performance.
● **Capacity control available on all units.**	Permitting stabilised performance irrespective of operating conditions.
● **Fully equipped service department.**	Giving quick access to spares and service.
● **Full 12 months guarantee labour and parts.**	Our reputation is built on quality and service.
● **Complete installation facilities including towers, pumps, water treatment, pipework and design services.**	Available from our Contracting Department.

O'GORMAN

W. H. O'GORMAN (IRELAND) LIMITED
Unit 13, Dublin Industrial Estate, Glasnevin, Dublin 11.
Telephone: 300977/300193/300044. Telex: 30981.

NEW PRODUCTS

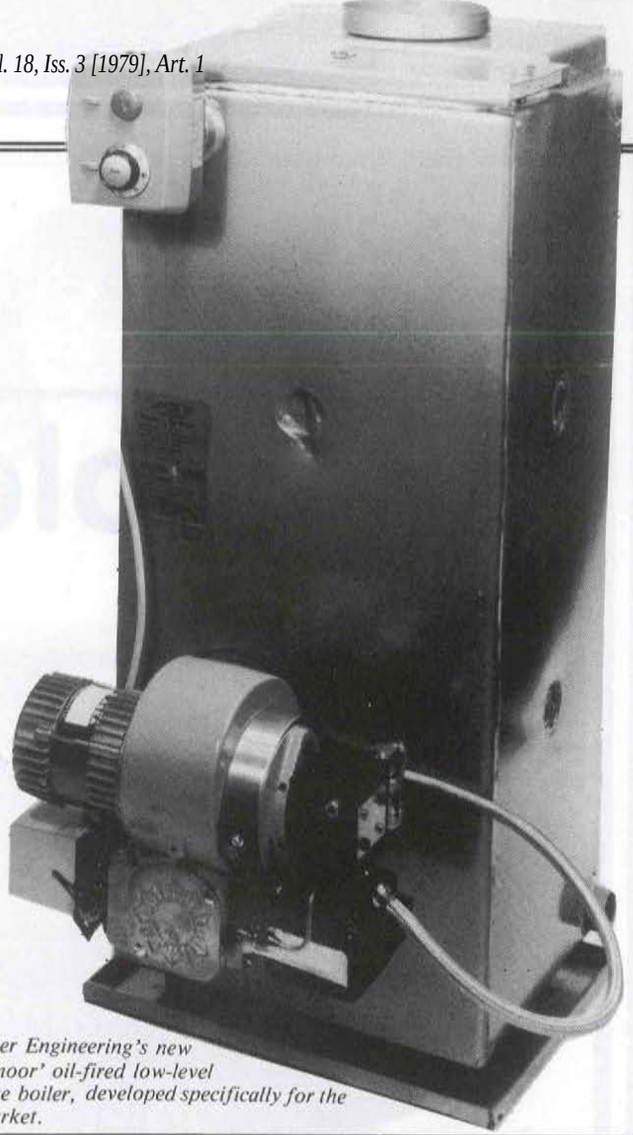
New Oil Pump from Danfoss

Danfoss have just introduced a new oil pump - MSLD - which has been developed for use on plants where the fuel oil may contain unusually large quantities of water or impurities.

The valve construction of the MSLD is different from those of the other pumps in the MSL-series in that it is based on a spring-loaded diaphragm, giving a safe pressurizing and closing function. The shaft is embedded in two Glassier-bearings, suitable also for media with poor lubricating power. Pump housing is surface-treated, and the built-in pump filter is made of nylon.

MSLD is extremely efficient and can be used on all types of plant including 1-pipe systems with underlying tank. The new pump fulfils the coming ISO standard in respect of thread and installation dimensions (neck-shaft diameter, installation length), and is especially suitable in the service branch.

For further information, contact J J Sampson & Son Ltd., 12a Wexford St., Dublin 2. (Tel: 752317).



Worcester Engineering's new 'Danesmoor' oil-fired low-level discharge boiler, developed specifically for the Irish market.

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LITERATURE

Heat Recovery Data Sheets

A number of data sheets outlining interesting case histories of heat recovery systems have been produced by Curwen and Newbery Ltd, a member of The Bath and Portland Group.

Actual working examples taken from site observations are shown including air to air heat recovery with the CN Heat Regenerator, outlining economic justification and performance when applied to kilns, ovens, driers and extract ventilating plant from halls, swimming pools etc.

The working examples are illustrated by photographs of the actual installations and a schematic layout indicates duties and temperatures. The high heat recovery efficiency shown is the result of correct sizing in installation, and efficiencies in excess of 80 per cent are frequent.

Other case histories covering the installation of CN Heat Pipes, CN Recuperators and CN Twin Coil Run-Around Systems are in the process of being produced. Copies of the case histories on heat recovery can be obtained from: Curwen and Newbery Ltd, Westcroft Works, Alfred Street, Westbury, Wiltshire BA 13 3DZ. (Tel: 823646. Telex: 444285).

Flues for Gas Appliances

The British Standards Institution has published BS 5440 Code of Practice for Flues and Air Supply for gas appliances of rated input not exceeding 60kW (first [illegible]

Part 1 Flues. This part of the code is a revision of CP 337 which is now superseded, and together with the already published Part 2 Air Supply completes BS 5440.

It deals with the choice and installation of flues forming part of installations for domestic or commercial purposes but excluding industrial and specialist applications.

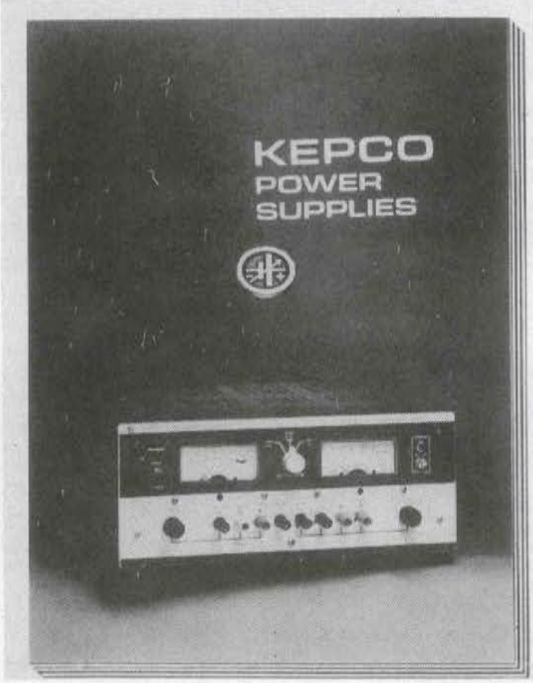
The code covers the complete flue equipment, from point of issue of the combustion products from the appliance to their discharge to outside air, and applies to all types of premises including multi-storied blocks of flats. Materials, components and appliances, design considerations, installation constructional work, inspection and testing are covered.

Numerical values are quoted in metric (S.I.) units with imperial equivalents in parentheses.

New BSI Standards for Domestic Solid Smokeless Fuel Sampling

BSI has extended the scope of its recommendations for sampling small consignments of domestic solid smokeless fuels. The new publication, BS 4845, Part 2, specifies the sampling procedure for fuels not greater than 80 mm in size, and covers definitions, precision of sampling, mass of the test sample and a method for the partial drying of the sample.

Copies of BS 4845 Part 2, may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND. Price £1.60.



A free 144-page catalogue of voltage stabilizers, and current stabilizers is now available from Techmation Ltd. The Kepco Power Supplies catalogue describes models which use switching technology and ferroresonance as well as linear feedback.

A free copy is available from Techmation Ltd., 58 Edgware Way, Edgware, Middlesex, England. Tel: 958-3111. Telex: 262245.

Coolflo Brochure

F H Biddle Ltd have produced an extensive and detailed technical brochure on their new Coolflo heating/cooling fan coil unit. A range of cooling duties of 0.6 up to 5.6kW is shown and an easy guide to model selection is provided. Available from: F H Biddle Ltd, Newton Road, Nuneaton, Warwickshire CV 11 4HP, (Tel: 0682 384233).

Revision of British Standards on Oil Firing Completed

The publication of BS 5410 Oil Firing, Part 2 Installations of 44kW and above output capacity for space heating, hot water and steam supply purposes, completes the revision of CP 3002 Code of Practice for Oil Firing.

BS 5410 Part 2 deals with the provision of new, or modernisation of existing, oil-burning systems for oil fuel as applied to boiler and warm air heater plants for space heating, hot water and steam supply purposes having a total rated output of 44kW or more.

It includes information on the selection and operation of the oil burners and also of the oil tanks and the oil handling and piping systems between the tanks and burners.

In addition, information is given on the design and construction of the accommodation such as building works, etc., relating to oil-fired equipment including the chimney and flue systems. Associated electrical equipment and instrumentation is also covered.

Solid Fuel Heating Appliances in Caravans

The second part of BS5610 Code of Practice for Ventilation and Heating of Caravans has just been published by the British Standards Institution. This is Part 2 Installation of Solid Fuel Heating Appliances and it takes the place of CP 340.

The code applies to the oil-burning equipment forming part of a multi-fuel installation in which oil is not burnt simultaneously with any other fuel. It does not apply to oil-fired systems for marine installations or flueless heaters.

The original code gave guidelines to heater manufacturers and designers of caravans on the installation of free-standing solid fuel heaters. With the increasing use of caravans it was considered necessary to prepare this revision, which now covers the installation of solid fuel smokeless fuel heating appliances and independent boilers for any central heating and/or hot water services designed for them. Safety precautions necessary are included.

BS 5601 will eventually consist of four standards. Part 1 Ventilation, published earlier this year, has created a great deal of interest. Parts 3 and 4, dealing with installation of oil-fired and electrical heating appliances, are in course of preparation.

Copies of any of the above can be obtained from B.S.I. Sales Department, 101 Pentonville Road, London N1 9ND.

INTERVIEW

FUEL FOR THOUGHT

Frank Lunny, consultant Fuel Technologist to Bord na Mona, does not fit into the popular mould of a radical. He's not in his late teens or early twenties. He doesn't wear dirty blue jeans, a torn leather jacket or his hair halfway down his back. Nor does he wave banners, sign petitions or 'man the barricades'. But Lunny does desire change and that's all it takes (according to an Oxford pocket dictionary) to define his thinking on fuel and energy in this country as "radical".

"It's crazy," Lunny says. "People in Ireland are still living in a dream world. They're still playing out those central heating ads of the early 60's. You know the ones. The snow is falling outside and inside a sweet young thing is running around in not much more than a bikini! We can't afford that type of luxury any more. I don't mean to sound pendantic, but a room needs only to be warm enough to cause discomfort. Years ago, we were used to temperatures of 60 degrees F or below in a room. Now everyone wants a reading of 70 degrees F or more in their offices and homes. They want a place warm enough so they can take their jackets off and hang them on the back of a chair. It's just not possible in this day and age!

We no longer have the fuel resources for this type of living. I'm not a geologist. I can't tell you exactly how much coal or electricity or gas the world has left, or at what rate we'll us it. I did read though somewhere recently that our reserves of coal were listed as around 10 million million tonn - a figure which should keep us covered well into the 21st or 22nd century. But, and I can't stress it enough, only 6% of that coal is economically recoverable by present methods. In Ireland, our major source of energy is turf, and to extract it we have to have large areas of bog. The little pockets scattered here and there just aren't of any use at this point in time. That will change though, I expect, just like it did when we had the last oil crisis in '73. Extracting and burning turf as a means of energy prior to that was just too costly. Now turf is only one half the price of oil."

Wouldn't nuclear energy provide a satisfactory alternative? Lunny refused to be drawn. "I won't take a stand," he said, "because there are armies of experts, much more qualified than I, on both sides trying to confuse or influence you with their statements. I will say this though. I do think that we should wait as long as possible before we use nuclear energy. And, once we do start, we should use as little as possible. The idea, as I understand it, is to use nuclear reactors to supply a maximum of 50% of our electricity output. But electricity accounts for only about 1/3 of our entire energy requirements." There's heating, transport, etc. to be considered he argued, further implying, but

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not actually stating, that he thought it all a bit silly to spend so much time, publicity and money on a source of energy that could, in the long term, offer so little.

Fuel, its power and its preservation has always been of interest to Lunny...almost since he was a boy in Enniskillen. Upon graduation from UCD in the mid '30's with a degree in Mechanical and Electrical Engineering he took a teaching job in Dundalk before moving to the ESB where he worked for 2 1/2 years. In 1939/40, Lunny worked with a firm of consulting engineers (boilers being his primary concern) and when war broke out, he joined the Scientific Research Council where he perfected several techniques for producing charcoal.

When the war ended, Lunny moved to private enterprise and worked as a distiller with D E Williams making Tullamore Dew. "I enjoyed that," he admits.

"Coal was scarce, and it was a challenge to try and make a product using as little fuel as possible. I remember when we first started. We were burning some 300 tonnes of turf and timber a week to keep production going. Gradually, though, we brought it down to 150 tonnes and eventually, just before I left to join Bord na Mona in 1953, we'd reduced it to 11,000 gallons of oil a week which is comparable to roughly 120 tonnes of turf. Those latter figures, mind you, are only relative and they don't take into account the increased production we had.

"The Co. Offaly company was a great experience," he continues, "from a commercial point of view. But it was at Bord na Mona that I was really able to broaden my scope and further my interests in combustion techniques. I also became involved in developing several appliances for burning turf," he adds, "the screw stoker being just one of many. "It's funny, you know, I often wondered why they encouraged our research in that area. It didn't make sense at the time. It was too costly and none of us ever thought we would actually see any of our ideas in action. But the energy crisis changed all that. All of a sudden, turf burning on a large scale became a viable proposition and larger boilers were needed for industrial heating.

Heating brought us back to preservation and district heating which is one of his favourite topics. "It makes a lot of sense," he pointed out. "It's more efficient to burn fuel in a large plant than lots of small ones, not only from an economic point of view but also from a conservation one.

With district heating, we could have co-generation - i.e. power and heat from the same plant. This would then be piped into the

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individual homes, and we'd use only that heat or power which was actually needed. Of course, to make that truly sensible," he continued, "we'd also have to have proper housing. Housing standards, at the moment, are deplorable! They just aren't suitable for the climate in which we live. Architects and builders spend too much time worrying about the views people will have or the aesthetical qualities. They should spend more time and effort building (and insulating) them properly instead."

But poor building standards and lack of energy conservation isn't only the fault of the architect or the builder, Sean Citizen is also to blame. "It scares me a bit," Lunny admits ruefully, "how unaware people are of our fuel situation. They just waste it. They never pause to think that we're slowly, but surely running out. Education, more public awareness was solely needed," he noted, "we must do something NOW."

"...doing something" certainly isn't a problem for Lunny who retired from Bord na Mona last year. Besides his consultancy work for the Bord and the National Board of Science and Technology, he's busy "keeping in touch with developments and those who are active in the field." Spare moments are few, but he does manage to spend some time with his nine children ("so far") and 10 grandchildren. "My children aren't as prolific as I was," he comments drily - only the tiniest flicker of his eyes betrayed a secret merriment at this quip.

Would he be travelling much, now that he'd retired? "No," he answered, "I won't have the time. It's hard enough finding a few spare moments for reading. I read just about everything, you know, but it always seems that when I get halfway through the book, I find it doesn't compare with Finnegan's Wake. There's something in it or any of Joyce's work for that matter, which is new every time I read it." Lunny also enjoys a good "thriller" ala Michael Innes, Rex Stout, Ross MacDonald or Ed McBain, and if there's time, a touch of traditional folk music.

"But if you really want to know my one vice, he confides almost conspiratorially across the table, "it's crossword puzzles. They're a terrible time-waster", he argues with himself but admitting sheepishly that there was a time when he'd stay up to the wee hours of the morning trying to find all the answers.

That's past now though. There aren't enough hours in the day, and his diary - the envy of younger "radical" counterparts - is bulging with dates for conferences, seminars, lectures and study groups on fuel conservation, alternative energy or combustion theory.

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Taylor Skates to Victory in Holfeld Pump Rally

The Holfeld Pump Rally 1979 was run in arctic conditions, every stage except the last one being snow-covered from 1 inch to 7 inches.

The intermediate road sections between the stages were even more treacherous, with ice and snow resulting in slight delays for rally traffic. From the original 80 crews entered only 57 started, most of the non-starters being knocked out by appaling road conditions before the rally start. There were 30 qualified finishers.

John Taylor put on a truely professional polished drive and set a pace from the beginning which no one could match. Conditions totally suited the performance and handling of his 2-litre Beetle with its rear-engined rear-wheel drive format. To win a national championship rally in Ireland by a margin of 6.45 mins. In such high class company is quite an achievement.

Taylor experienced three basis problems throughout the event – the throttle pedal, the exhaust cracking at the manifold and electrical problems resulting in the lack of lights at times.

He arrived with barely enough time before the event to arrange seating in the rally car, and actually drove the Beetle for the first time on the morning of the event. It is only the second time in his career that he has driven a Beetle or a rear-engined rear-wheel drive car in an event, the last one being the Wurtz Porsche-powered VW Beetle in Austria.

Pat Ryan, who arrived one day before the event to familiarise himself with competitive Mini driving, completed two hours of staggeringly quick test times on the Friday morning. Unfortunately the clutch release bearing broke on his BL Cooper 'S', and the Holfeld mechanics strip and rebuild the unit overnight.

At 6.30 am on the morning of the event, it was discovered that while reassembling the engine, a block bolt had come loose and a repair could not be effected in time. So a very disappointed Pat Ryan had to return to England without his much looked-forward-to competitive drive in an ex-works Cooper 'S'.

Notable non-starters included Rosemary Smith, whose new Sunbeam 2 Litre was not finished, Brendan Fagan's Escort, John Lyons RS 2000, and last year's winners Davy Francis and Tommy Reid.

Second overall, Robert Copeland, having his first-ever Avenger drive set three fastests to the lunch half. Even a 2-minute stop in Croghan, when he could not get up a steep hill on the ice, was not enought to keep him out of second place. George Robinson put on a late spurt to climb to fifth overall, only 9 seconds behind Ernest Kidney.

The Holfeld Pump Rally '79 success for John Taylor gives him his third major Irish win in a year.

The event was efficiently and smoothly run throughout by the organisers – Dublin University/Trials Drivers Club – and proved to be a very popular event with the competitors. The day/night format proved most interesting, and the event seems certain to remain in its present format for 1980.

Drexel Gillespie, co-driver; Richard Holfeld of H R Holfeld (Hydraulics) Ltd, sponsors; John Taylor, driver; Clive Evans, clerk of the course; Richard Hamilton, secretary of the meeting, pictured at the presentation of trophies.

Official Results and Overall Positions

Place	Driver	Navigator	Car	Marks Lost
1	J. Taylor	D. Gillespie	Holfeld VW 2.0	110 M 07 S
2	R. Copeland	G. Campbell	Avenger 2.0	116 M 52 S
3	G. Buckley	J. Coplice	Escort RS 1800 2.0	118 M 07 S
4	E. Kidney	P. Scott	Escort RS 1600 2.0	118 M 22 S
5	G. Robinson	W. Mellmoyle	Avenger 2.0	118 M 31 S
6	E. Kenmore	J. Armstrong	Avenger 1.8	119 M 03 S
7	S. Orr	R. Foreman	Escort 1.3	119 M 03 S
8	R. Moffett	J. Boyd	Escort RS 1600 2.0	119 M 38 S
9	B. Law	L. Weir	Clievette 2.3	119 M 39 S
10	D. Henry	T. Henry	Escort RS 2000	120 M 41 S
		Class Winners:		
	F. Fennell	E. Greene	Avenger 1.3	122 M 30 S
	G. Robinson	W. Mellmoyle		
	S. Orr	R. Foreman		
	R. Moffett	J. Boyd		
		Non-Experts:		
1	D. Megaw	R. Johnston	Opel Ascona 1.9	141 M 36 S
2	E. Byrne	A. Lee	Hornet 1.3	144 M 52 S

Tarmac Rally Champions John Taylor and Drexel Gillespie winning the 1979 Holfeld Pump Rally in arctic conditions in the sponsor's own Group 5 2-litre Beetle.

Companies Supplying Pipes, Fittings & Drainage Equipment

Company Name	Address	Telephone	Telex	Primary Material
Bartol Plastics Ltd.	St Peters Rd., Walkinstown, Dublin 12.	508970		PVC Polypropylene
P J Collins	Kill-of-the-Grange, Pottery Rd., Rochestown Ave., Dun Laoghaire, Co Dublin	806112		Clay
Concrete Pipes Ltd.	Mauldings Works, Naas, Co Kildare.	045-9353	5813	Concrete
Fleming Fireclays Ltd.	The Swan, Athy, Co Kildare.	0507-25513	33005	Clay
G P E Teo	Annagry, Co Donegal.	309377 or Annagry 27	5189-D 4396-A	F R P
Lister Tubes Ltd.	Ballymount Rd., Clondalkin, Co Dublin.	509020	30324	Mild Steel Carbon Steel
Manotherm Ltd.	4 Walkinstown Rd., Dublin 12.	504025 783387	4467	Brass Nylon
Marley Flooring and Plumbing Ltd.	Lucan, Co Dublin.	280691	5155	PVC Polythene
Nu-plast (Arklow) Ltd.	South Quay, Arklow, Co Wicklow.	0402-2144 0402-2955		Polythene
Plastic Constructions (Ireland) Ltd.	44c Dublin Ind Est., Finglas, Dublin 11	309500	31242	AVS PVC C PVC Polypropylene PTFE
Quality Plastics Ltd.	White's Cross, Cork	021-884223	32038	PVC Polythene
Leslie Reynolds & Co Ltd.	21 Nth Frederick St. Dublin 1.	740427 / 740697 740683 / 786948	30944	Mild Steel
Tegral Pipes Ltd.	6 Sth Leinster St., Dublin 2.	763974	4281	Asbastos Cement
Tonge & Taggart	East Wall, Dublin 1.	786088	30993	Cast Iron
Unidare Ltd.	Finglas, Dublin 11.	771801	5141	u PVC
Wavin Pipes Ltd.	Balbriggan, Co Dublin.	412260	5219	PVC Polyethylene
L R Wood Ltd.	174 Pearse St. Dublin 2.	772639 772441	8210	Trap Gully Fittings.

(Compiled from information received from individual companies)

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The Complete Picture

Whether to drain or irrigate fields or to supply a city's population with water or carry away its waste, there has always been a need to transfer water from one place to another. Initially, builders and engineers used stone and vitrified clay, later cast iron. In more recent years, the emphasis has been on plastic - in all of its ramifications.

Newness of product though is not a blank cheque and any manufactured article must justify its existence by its suitability for the job for which it was designed. This means looking at handling, erection time, appearance, total costs and reliability. Our products are 'highly durable' the plastics people say. "So too are ours" the cast iron manufacturers counter, pointing out that their products have proved themselves reliable over the years. In fact, its not at all unusual to find systems over 100 years old still in use. Where high external loading and fire risks are significant, cost savings by using cast iron are obvious. Where ease of erection and weight of the product is concerned, the plastic product comes to the fore.

Objectively, though, is the issue and in a list of the merits of a cast iron soil pipe assembly erected against a wall vs a plastic equivalent, the following conclusions are drawn:

Requirement	*Cast Iron and Lead*	*Plastic (PVC)*
Low cost	*Higher cost*	*Lower cost*
Little or no maintenance	*Yes*	*Yes*
Low weight for easy handling	*No*	*Yes*
Rapid erection	*No*	*Yes*
Resistance to mechanical damage	*Cast iron - very good; lead-poor*	*Not as good as cast iron; better than lead*
Easy adaptability	*Not really*	*Yes*
Easily cut and jointed	*No*	*Yes*
Good appearance when properly erected	*Yes*	*Yes*

Plastics in this instance obviously win out. Decisions though as expressed or outlined above are seldom so simple. Costs may not be as important as durability while ease of handling not as vital as safety precautions. Clearly, a look at the COMPLETE picture is necessary before the engineer decides on the type of pipework - be it plastic, asbestos cement, cast iron or clay - which will best suit the job's specific requirements.

Bartol Plastics

Bartol Plastics Push-fit Waste System is the only range currently available which conforms to BS 5254 requirements and is licensed to bear the BSI Kitemark. It is manufactured in 34.6, 41, and 54 mm sizes in grey or copper coloured polypropylene - a material which has high chemical resistance and is unaffected by boiling water.

A significant feature of the Bartol Waste System is the patented push-fit jointing method. An "O" ring seal is retained in a moulded housing by a snap-in end clip which is factory assembled. This, in turn, gives a simple, positive, push-fit sealing action and incorporates an allowance for thermal movement of the pipework at each joint.

A wide range of traps including the Barvac anti-siphon trap is also manufactured in white polypropylene to complement both the Bartol Push-fit Waste System and the Bartol Solvent Weld Waste System.

Bartol's other above-ground drainage products include uPVC soil and vent systems manufactured in 82.4, 110 and 150 mm sizes and a comprehensive rainwater system available in square or half-round profiles in black, white or grey.

All Bartol products are available from a national network of builders and plumbing merchants and further information can be obtained by contacting Barton Plastics Ltd., St. Peter's Road, Walkinstown, Dublin 12. Tel: 508970.

Concrete Pipes

Concrete Pipes Ltd of Naas, who have been manufacturing concrete pipes since 1950, produce a wide range of pipework which includes land, domestic, and main drainage as well as sewage schemes. In addition to the comapny's main factory at Naas, there are two other plants at Mungret, Co. Limerick and Ballisodare, Co. Sligo.

As well as manufacturing concrete pipes from 6 to 72" in diameter, large scale inspection chambers and road gullies, Concrete Pipes also market Davron precast concrete domestic manhole units. These are manufactured to BS 556 and base and wall units are joined with either sand, cement, mortar or mastic.

For further information, contact Concrete Pipes Ltd., Maulding Works, Naas, Co. Kildare. (Tel: 045-9353).

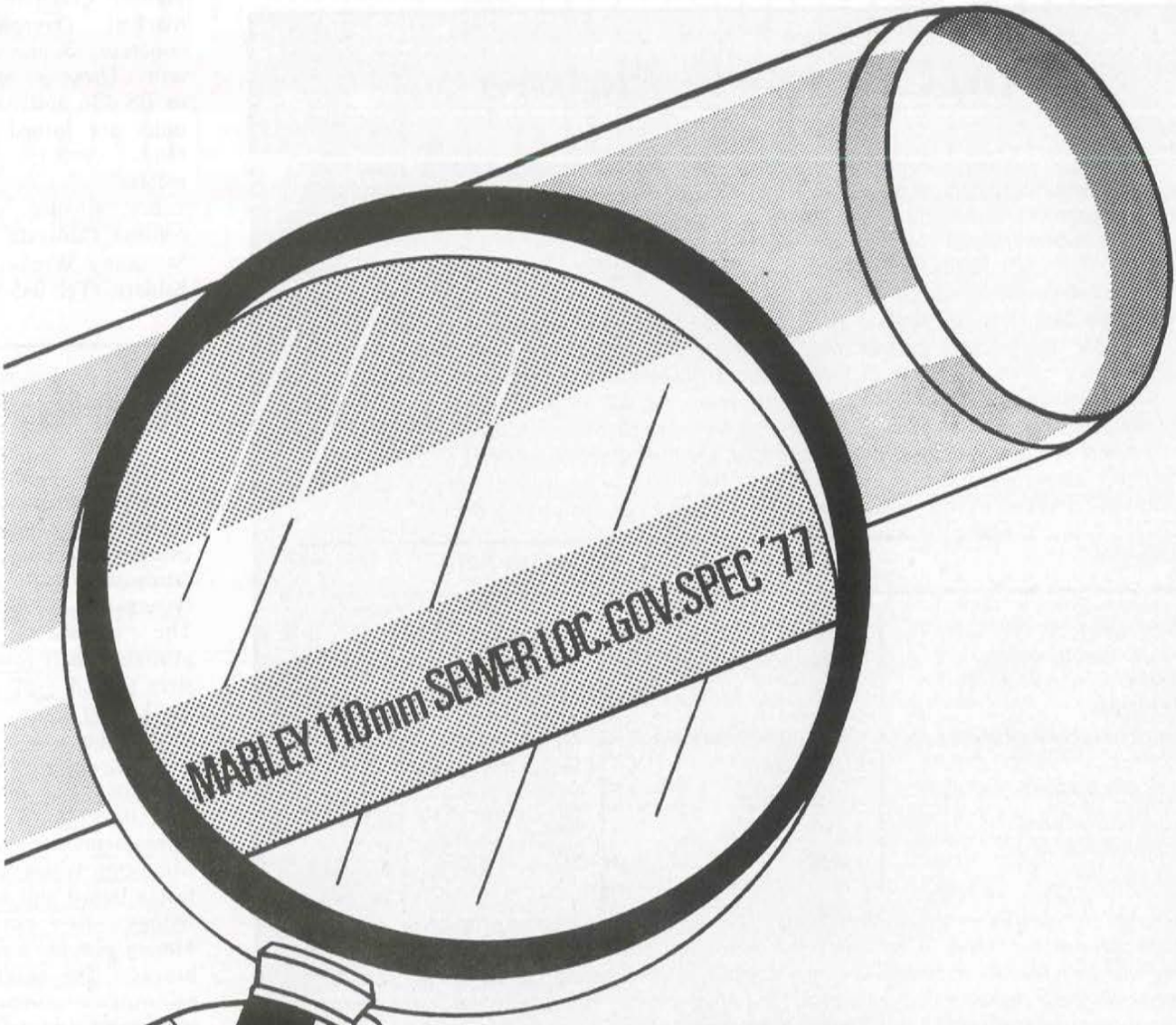
Marley

Marley Flooring and Plumbing provide architects, plumbers and builders with an extensive choice of uPVC rainwater, soil and waste systems.

The rainwater system is available, half-round, in four sizes (3", 4", 5" and 6") in black and grey, the anglia rectangular and deepflow (with or without box eaves) in grey and white and the classis ogre in white. Top and side rafter arms are available for situations where there is no fascia board and where rafter fixings are not suitable, Marley provide a rise and fall bracket. The range of uPVC rainwater components is comprehensive and is available ex stock to cater for any rainwater disposal problem which might occur.

All Marley soil fittings are designed to comply with the Code of Practice for Sanitary Pipework Above Ground. The company have continuously been adding to and improving their range of 4" and 6" soil fittings, and the collar boss and multi-branch fitments are in great demand especially where space around stacks is limited. A patent fitting, like the collar boss and multi-branch, the adjustable bend is also available and can be made up to suit any angle from 90 degrees to 166 degrees.

Of particular importance, especially to plumbers, is the addition of a WC manifold system which has been developed for groups of WC's in offices, schools, hotels, hospitals, etc. The components are suitable for installation in either a narrow



LOOK FOR THE MARK

of Guaranteed Quality Sewer

Marley Pipes and Fittings comply fully with the Department of Local Government Specification 1977. The presence of this mark on Marley products is an assurance that the goods have been produced and tested in accordance with this specification.

Write or telephone for full information.

Marley Plumbing

Manufactured in Ireland and marketed by

MARLEY Flooring and Plumbing Ltd.,
Lucan, Co. Dublin. Telephone: 01-280691.

guaranteed irish

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DOI: 10.21427/D7S413

pipe duct, or for fitting on the surface of the wall directly behind the WC pans. To accommodate varying angles and gradients, the 110 X 90mm WC branch has a radial socket to match a small adjustable bend which may be cut and solvent welded to the curved side branch. A standard Marley boss upstand is moulded on the adjustable bend and this can be adapted on site for connection to ventilating pipework.

The Marley waste system incorporates a wide range of fittings available in either 1 1/4 or 1 1/2" dia. sizes to meet the Code of Practice Requirements as well as a 2" dia. size. There is also a MPVC pipe for discharge temperatures over 70 degrees C and uPVC pipe for those below. A full range of sanitary appliance traps is offered including anti-siphon traps and 3" deepseal traps for single stack installations.

Fitting and jointing instructions for all Marley products are given in illustrated brochures and a technical advisory service is available to answer queries and offer recommendations regarding the correct use of the company's products.

For further information, contact: Marley Flooring and Plumbings Ltd., Lucan, Co. Dublin. (Tel: 280691).

Quality Plastics

Quality Plastics manufacture and market a wide range of polythene and PVC products for the building industry. Items include high and low density polythene piping, PVC sewer, soil, service and rainwater systems as well as ABS (II-T) waste systems and traps, and fibreglass and polythene cold water storage tanks.

One of the newer products to come from the Cork based company is Qualplast PVC [illegible] for foul and storm water drainage. The range also includes PVC gullies, shallow angle and channel bends, access and rodding eye systems, and the Marscar access system.

The 110mm Qualplast pipes and fittings carry the BSI Kitemark for BS 4660:1971 while the 160mm pipes conform to the requirements of BS 4660:1973. The brown pipes are supplied in 3m or 6m effective lengths, plain-ended or with single sockets.

For further information contact, Quality Plastics, White's Cross, Cork. (Tel: 021-884223).

Tonge & Taggart

One of the oldest cast iron fo undries in the country (production commenced in 18697, Tonge and Taggart are major suppliers of cast iron products to the building industry. Items include, amongst others, flanged, spigot and socket watermain pipes and connections, fittings for asbestos cement and plastic pipes, surface boxes, gullies, kerbings and manhole covers.

The municipal authorities are amongst the company's major clients, and in recent years, they have also completed a large number of industrial projects - Abbot Laboratories, Merck Sharp & Dohme, Digital Equipment International and Asahi - to name but a few. On the export front over the past two years, orders have been filled for projects in the UK, Nigeria, Kuwait, Lebannon, Bahrain, Syria, Saudi Arabia and Abu Dhuabi.

For further information contact, Tonge and Taggart Ltd., East Wall, Dublin 3. (Tel: 786088).

Unidare

Unidare, one of Ireland's largest manufacturing companies, markets Terrain plastic systems for both soil and waste and rainwater applications.

The Terrain soil, waste, traps, waste outlets and overflow systems are all designed to meet the requirements of British Standards specifications and, where applicable bear the Kite mark. Each system comprises a wide range of socketed fittings for use with plain ended pipe and solvent welded or seal ring joints. A range of fittings is provided for expansion joints to accommodate thermal movements, and there are accessories for connection to all other materials...CI, GVC, pitch fibre and plastics below-ground drainage.

The Terrain half-round or square uPVC rainwater systems are designed for efficient disposal of surface water from all low and high rise domestic buildings. The system comprises a wide range of spigot/socket fittings for use with plain ended pipe, and socketed gutter fittings for use with plain gutters. In addition there is a range of fittings for connection to other materials. Both square and half-round rainwater systems are designed for on-site use.

Terrain also manufacture a variety of roof and balcony outlets in uPVC.

For further information contact, Unidare Ltd., Jamestown Road, Finglas, Dublin 13. (Tel: 771801.

Wavin Pipes

The diversity of piping systems and related fittings manufactured by Wavin Pipes Ltd serve modern requirements of housing and site services from water supply to sewage disposal. The range includes PVC rainwater, pressure pipes, sewer and drain soil pipes and many other systems for special applications. Wavin also manufacture a comprehensive range of fittings, in fact, 90 per cent of its requirements, and, of course, Pe piping.

Wavin's PVC pipe systems have many unique advantages. They have good flow characteristics which are retained throughout their years of service, and they exhibit a local frictional resistance. For example, the resistance to flow in a PVC pipe is less than that of other pipes of the same diameter. Furthermore, this property is retained throughout years of service, because plastics are highly resistant to corrosion remaining reliably free from the build up of scale and other deposits that otherwise reduce flow.

It follows that when specifying plastic piping there is no need to compensate for eventual bore reduction by calling for a larger size than will actually carry the flow. A smaller diameter plastic pipe system will often do the same job as a larger one in other materials. This practical and economic advantage has been illustrated in other ways, for example - the problem of descaling mains of traditional materials has, from time to time, been cheaply and conveniently solved by relining them with new PVC pipe.

Wavin's plastic pipes are also resistant to a wide range of chemicals, including those most likely to be encountered in domestic situations and do not depend on a surface coating to exhibit this property. (In many industrial applications, plastic piping is used for conveying chemicals, including mineral acids of temperatures up to 80 degrees C.). At the same time, they are free from the galvanic and electrolytic actions that effect metals. Consistently high performance can therefore be expected not only from the pipes, but also from associated fittings. Chemical resistance is also exploited in underground systems, where plastic pipes perform equally well in acid and alkaline soils.

For further information contact, Wavin Pipes Ltd., Balbriggan, Co. Dublin. (Tel: 412260).

NORTHERN IRELAND REVIEW

Mrs. T. Greeves, Secretary of the N.I. Council for Orthopaedic Development receives a cheque from Mr. D. Stothers, President of the N.I. Master Plumbers Association. The cheque was the proceeds of the recent dinner dance. On the right Mr. W.A. Crawford, Secretary of the N.I.M.P.A.

Mr E. Gilmore, consulting engineer of Botanic Avenue, Belfast, has been joined by Mr. R. Barnes and the new name of the company will be Gilmore & Barnes with the offices remaining in Botanic Avenue.

Mr. Barnes has considerable experience in factory design and contract negotiation, he is a member of the Institution of Mechanical Engineers and a Fellow of the Institute of Fuel.

* * *

Mr. D. Stothers, President of the N.I. Master Plumbers Association had a pleasant duty to perform when he had to present a cheque to the organising secretary of the N. I. Council for Orthopaedic Development as a result of the recent Annual Dinner of the Association.

The nomination to negotiate the contract for the new general hospital at Antrim has gone to McLaughlin & Harvey Ltd. in association with Taylor Woodrow Ltd.

Similarly Haden Young Ltd. have been selected to negotiate the mechanical services contract and Balfour Kilpatrick Ltd. the electrical contract.

Subject to satisfactory negotiations these firms will carry out the major part of this substantiated contract.

The Institute of Irish members and guests combined with those of the Chartered Institute of Building Services to hear a lecture by Mr. Tom Cameron on the case for a gas pipe line between Northern Ireland and Great Britain.

Mr. Cameron, Manager of Coleraine Borough Gas Dept. and an active member of the Irish Gas Engineers Association made a strong case in support of the link both economically and physically.

J & T Ballentine (Sales) Ltd. of Clarence Street, West Belfast were hosts to the representatives of the heating and electrical trade at their trade reception in the Members Rooms at the R U A S, Kings Hall Belfast.

* * *

Mr T S Green, formerly of Esso, has gone into practice as an efficiency consultant, particularly relative to carrying out boiler efficiency tests and preparing reports etc. in connection with the new Energy Saving Grants scheme. Mr Green will be available to consultants, industry etc. to carry out on site tests and the preparation of the necessary reports.

Mr Green is available at "Shareen", 154 Shore Road, Greenisland, Carrickfergus.

* * *

Balford Association of Engineers continued their programme of visits, members and friends recently enjoyed a visit to the Sunblest Bakery at Belfast.

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Mr Brian O'Dowd was the speaker at the monthly meeting of the District Heating Association in George Road House, Bangor.

Mr O'Dowd spoke on welding techniques and the precautions to be taken in the preparation and joining up of district heating mains.

Joint Meeting of the CIBS and Institute of Energy to discuss the proposed Gas link: S. Ferguson - Vice Chairman CIBS; R. Davis, Hon. Secretary, CIBS; S. Andrews, Chairman, CIBS; T. Cameron - Coleraine Gas Manager - Speaker; C. Monaghan - Chairman, Institute of Energy and F.R. McBride, M.B.E., Hon. Secretary, Institute of Energy.

On the retirement of Dr Dennis Rebbeck as chairman of I E S Industrial (Ireland) Ltd., 81 Rosetta Road, Belfast and 41 Dawson Street, Dublin, the company has announced that Mr W Devlin is the new chairman. Mr Devlin is Managing Director of John Kelly Ltd., the holding company of I E S.

* * *

C J Monaghan formerly with a large firm of consulting engineers has commenced practice on his own account. Mr Monaghan will trade as C J Monaghan Ltd. from 16 Howard Street, Belfast he is a member of the Institute of Mechanical Engineers and a Fellow of the Institute of Fuel being the current chairman of the Northern Ireland Section of this Institute.

Dr Wells was the guest speaker at a well attended joint meeting of the Institutions of Mechanical Engineers, Electrical Engineers and Fuel.

Dr Wells gave an intriguing illustrated talk on the experiments being carried out to generate power from the waves, with particular reference to the tests which have been carried out by Queens University at Strangford Lough.

* * *

Mr R Martin, Managing Director of Hoval Boilers Ltd., recently visited Belfast to receive an order for his company's products worth £40,000 from his Northern Ireland Agents and Distributors Messrs P & D MacFarlane Ltd.

DOMESTIC WASTE AS A FUEL

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A paper presented to the seminar on waste recycling, held in Cork in January, by Mr John Marshall, director of IMI Energy Systems.

The use of waste as a fuel is not new. The Third World even today is expert at using what little waste they produce to provide heat. The problem we have is that our society, while producing a great deal more waste per head, also insists on higher disposal standards.

Waste is not different from any other fuel in that to achieve optimum combustion it is necessary to prepare it for combustion. It is largely in the area of preparation that you find the various methods for using waste as a fuel.

METHODS

Mass burning incinerators are the most common method of raising heat from waste. This method has no fuel preparation and relies on the grate and furnace to deal with the waste. In consequence both grate and furnace have a difficult job. The capital cost of these units is high, as is maintenance. They do not however use any other fuel.

Incineration with shredded waste: There is one such unit in Canada, and after 5 years, the performance of this unit is now impressive and clearly illustrates what can be achieved in fuel terms. While less expensive than conventional mass burners, it still requires a fair amount of capital so that it is restricted to high daily tonnages.

Pelletisation: This method of treatment is being developed in many areas and consists of processing the waste into small compressed pellets up to 1'' in size. This method has the advantage of making waste easier to handle, it gives it a longer storage life, and it is in a form suitable for a large range of boilers (particularly small units). It has the disadvantage of high running costs and the economics have still to be proved acceptable.

Pyrolysis has been attempted in a number of locations and has the advantage of producing convenient fuels such as oil and gas. To date the practical problems in handling the material in the combustors has not been solved and costs are too high.

Waste as a supplementary fuel to boilers. In recent years a great deal of work has been carried out on using waste as a supplementary fuel in existing boilers already firing solid fuel. This system has the advantage that the boiler already exists so that capital costs are considerably reduced. Difficulties have been experienced in the large pulverised coal boilers but smaller boilers are proving more successful.

IMI WASTE FIRING SYSTEM

This system is designed to fire waste as a supplementary fuel into existing boilers. It was designed around the following criteria:

The project was aimed at producing a cheap fuel and was not meant to be a method of waste disposal.

Refuse had to be prepared for burning and the optimum preparation would be that which gives stable combustion at the lowest preparation cost.

Material likely to have an adverse effect on combustion or has a value in itself higher than its heat value should be removed within the overall economic limit.

Environmental standards had to be maintained to at least the standard achieved with coal firing.

The plant installed around the design criteria consisted of a shredding plant with ferrous extraction, a containerised transport/storage system and the firing equipment.

The main problems that had to be solved were largely associated with material handling external to the boilers.

In 1977 we were achieving our original aims and providing our boilers with a fuel some 50 per cent lower in heat value than our coal but also much cheaper.

Waste as a fuel is only one form of recovery and each method has to be studied in its own economic right. In some cases the fuel route will be best in others the compost route will be better and so on. The best route of course is not to needlessly produce the waste in the first place.

Aspects of Waste Handling and Resource Recovery in Sweden

We present here an edited version of a paper presented to the seminar entitled ''The Potential to Reduce Pollution by Recycling'' in Cork in January by Bennie Hansen, PLM, of Malmo, Sweden.

Recovery of resources in the traditional form is well known to all of us, and the scrap dealer has a long tradition handling such materials as scrap steel and waste paper.

Besides the desire for improved resource conservation, we have all more recently become aware of the need for extended resource recovery as a means of minimizing damage to the environment and to the public health. Why is it then that so large quantities of waste, toxic and otherwise, are still simply dumped or incinerated?

The answer is, of course, that it is not economically feasible to do any better. And the situation will persist as long as our concern for the environment and for the public health is not expressed in more stringent and precise requirements which can consequently be converted into real economic terms.

This fact has been realized more recently and improvements in legislation and practices are continuously being reported. On a macroscale, this goes for the EEC as well as the US where the Resource Conservation and Recovery Act was passed

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in 1976 and is now being implemented through its various stages, although with some understandable time delay.

In Sweden, the basic laws and regulations date back to 1974 - 1975 and a considerable development has taken place since then. Up to the seventies, practicing of waste management had been carried out with little regard to environmental and health aspects and, of course, with no regard to resource conservation aspects. Because most of the damaging effects resulting from improper and low cost practices will not show up until perhaps 20 or 30 years later, it has been far too easy to find acceptance for such practices.

Striking examples abound, the most widely published being concerned with ground water and soil toxification from inactive disposal sites for hazardous wastes. The public health problems represented today by these sites are obvious to everybody. But many apparently harmless wastes such as bark, adjacent to a saw mill or garbage adjacent to a city, present, in many cases, considerable but less published hazards.

As a result of the rapid development in recent years, we can now choose from a number of alternatives among which resource recovery is the most sensible. But it is only in the total context of environmental and public health aspects, that modern resource recovery can constitute an economically attractive alternative. Resource recovery can never compete with old-fashioned neglective practices, and there is no reason whatsoever why it should be required to do so.

When considering the possible implementation of resource recovery, the first step is to carry out feasibility studies for alternative systems that are all based upon environmentally sound standards. In doing these studies, one must start looking at the problem from "the other end" of the chain: Do markets for additional recovered products exist or can they be developed in my region?

FACILITIES AND ORGANIZATION

In addition to development of markets for recovered products the necessary processing and treatment facilities must be established. Very often according to the experience in Sweden a joint partnership will be required because no single traditional organisation has available the necessary expertise and resources to carry through on its own. Gradually this will result in a restructuring of some of the businesses involved. Likewise the local authorities concerned will often find it useful to reorganise themselves.

The complexity involved in the development of resource recovery is focused on the institutional and organisational rather than technical aspects because of the very nature of the activity. The development just cannot move as fast as many enthusiasts would like to see. The key to speeding up the process lies in a very careful planning of the total system and in the economic incentives, in the initial stages.

Careful consideration should be given to the pronounced cyclical nature of the secondary materials business, but this fact should not scare everybody away. The waste paper development in Sweden can serve as an example of this.

Because new de-inking capacity has gradually been put into operation over the last two years there has been a steady increase in domestic demand for raw materials, and by 1979, Sweden will become a net importer of waste paper.

End-uses for the additional quantities of paper and board will be newsprint and consumer and transport packaging materials. The increased demand it is hoped will stabilize the waste paper prices in Sweden which have fluctuated

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considerably in recent years. I believe it useful to describe in brief how markets for some recovered products are developed in Sweden.

MARKETS

Paper and Fuel:
Waste paper is traded throughout Europe and even between Europe and the US for some of the better grades. Besides the volumes traded due to the business cycles not occuring simultaneously, there is always a "technically" based trade at the base. This is because normally the consumption and production of paper in any one country is not balanced with respect to grades.

In Sweden, a law was passed in 1975 requiring all local communities to arrange for separate collection from the households of old news and magazines wherever possible. This potential is in the order of 200 - 300 thousand tons per year. An additional potential of 400 - 500 thousand tons can eventually be recovered from the mixed waste stream. However, for the coming several years the first mentioned quantity recovered by separate collection will fill the needs.

In the meantime the paper and plastic rich fraction to be recovered from mixed waste can be utilized as a supplementary solid fuel for which there is an immediate market in Sweden. These fuels are normally referred to as Refuse Derived Fuel (RDF) and their heating value is 2/3 of that of coal.

It is important that local markets are available in order to avoid additional burdens of long distance transportation. Not every type of boiler will accept this type of fuel and a detailed analysis is required. The key to successful RDF schemes is in using existing industrial boilers requiring only marginal investments for the handling and storage of these types of fuels, rather than building all new boiler facilities.

In this way the RDF route is the more advantageous mixed waste recovery system as long as the ultimate goal is paper recovery.

GLASS

Recovery of glass must be based upon source separation in order to minimize contamination. Notably, ceramic contamination presents a problem, because even small particles will cause dangerous tensions in the final product such as bottles. Glass comes in many colours and as the recovery rate is gradually increased the requirements for colour sorting will become more strict. Hence the need for colour sorting already at the source.

When using glass cullet the energy saving is in the order of 15 per cent depending on the type of furnace. Together with additional savings in distribution and handling, the overall advantages of source separation systems for glass are so pronounced that it is on the increase in most countries where perhaps Switzerland Germany and Sweden as well as the UK over the last year or so are among the most prominent.

PLASTICS and RUBBER

Plastics occur in the waste streams in several hundred modifications and types, mostly mixed up. The recovery of mixed plastics has til now been unsuccessful, and for quite a long time the only realistic approach seems to be source separation applied to the more readily recoverable types.

In Sweden, an example of this is the recovery of shrink wrapping polyethylene, which can be regranulated. This system can gradually be extended to cover more types. Nevertheless a number of development projects are being persued in Sweden and elsewhere concerning the recovery of the mixed plastics.

Rubber is another polymer that can be collected separately in the form of tyres. A number of end uses are possible ranging from coatings to reprocessing back into new tyres.

IRON and STEEL

Iron and steel occuring in the mixed waste are easily recoverable because of their magnetic properties. In Sweden, some ten thousand tons will be recovered in a few years time by separation equipment which is now being installed. The market for these rather contaminated products is very limited, but they are being developed in Scandinavia as well as in Germany and in the UK.

The most common end use is in the form of reinforcement bars in concrete structures and in certain simple foundry products. The depressed steel market over the last couple of years has slowed down the number of ongoing projects, but looking a little ahead it is expected that the recovery rate will increase again.

NON-FERROUS METALS

Materials such as aluminium, copper, tin, lead, silver, occur in rather small quantities in the waste stream but are of considerable value. The recovery rate is continuously being improved and new sources are being developed such as scrap cars and household durables through fragmentation, metallizing industries, and, to take an odd example, spent materials from X-ray laboratories (silver). These metals are traded long distance and do not depend on local markets.

COMPOST

An important problem when dealing with waste management and resource recovery is concerned with a number of sludges deriving from the pulp and paper industry, the food processing industry, the municipal sewage treatment plants etc. These sludges are biologically active and present a considerable environmental hazard. First of all, they must be converted into an inactive form and secondly and preferably into a useful form.

In Sweden, this type of waste amounts to several million tons per year. A number of treatment methods including incineration have been tried out, but the most promising seems to be a controlled digestion resulting in a stable product that can be mixed with other components meet various soil and fertilizer characteristics and mostly known as Compost.

A number of plants are under construction or in operation in Sweden. The potential market for compost in Sweden is considerable, but development takes many years, so initially most of the compost will be used for landscaping and similar.

Markets, therefore, already exist or can be developed for many of the potentially recoverable products, but local factors strongly influence the ultimate choice of the recovery scheme. But it is nevertheless safe to predict that the facilities required will fall within the following categories, which are all being constructed or in operation in Sweden:

- De-inking of printer paper
- Additional pretreatment units for cleaning waste paper
- Process plants for mixed wastes
- New sites conveniently located
- Modifications of existing industrial boilers
- Additional district heating capacity
- Car fragmentation plants with facilities to recover non-ferrous metals and steel besides plastics
- Additional waste paper receiving and sorting stations
- Transfer stations with compaction capacity

Tyre fragmentation and rubber recovery plants
Sludge composting plants

One can easily be misled to believe that resource recovery

is concerned with elaborate new techniques for separating and sorting of mixed waste. As will be understood from the above list there is a lot more to it and at the risk of repeating myself the emphasis in the planning procedure must be on markets and facilities for end-use of recovered products. This is not to say that the waste processing plants are less important, but they must be placed in the right perspective.

PAPER AND BOARD FACILITIES

Paper and Board Facilities: The Swedish paper industry has taken a lead in resource recovery by establishing, by now, three new de-inking plants. This has paved the way for the introduction of separation of news and magazines in the households. Also paper and board manufacturers producing solid board, corrugated and test liner have prepared themselves for accepting gradually lower grades of raw materials in addition to the secondary grades traditionally used.

Mixed Waste Processing Facilities: A number of garbage processing plants are now under construction or in their initial stages of operation. Up to a few years ago incineration was the preferred advanced processing method, but lately we have had a whole new series of facilities including one pyrolysis plant, two plants for recovery of urban fibre, one for making RDF and several plants for composting of mixtures of garbage and sewage sludge.

The incinerators are facing severe problems in meeting the new emission standards, a problem which can only be rectified at considerable additional costs.

The pyrolysis system has met with the same problems as experienced in the American demonstration programme and concerned with corrosion, emission and polymerization of the pyrolysis product.

The type of compost produced from a mixture of garbage and sewage sludge has a very limited end-use, because of the high level of unwanted materials such as shredded plastics, glass etc. in addition to toxic compounds including heavy metals. But mixed waste composting is a reasonably sound method of disposing of these types of wastes because in any event the "compost" can simply be placed in a controlled landfill and no deleterious effects will result. But no resources are recovered except for the ferrous metals which can easily be extracted.

Most attention is now being focused on the systems for recovery of fuel and urban fibre and many projects are in the planning and preparation stage in addition to three projects now materializing. Large scale operating experience will be available from early 1980 but, extensive pilot plant and prototype tests constitute the basis for a wide spread confidence and acceptance of these systems.

District Heating as a means of recovering heat from industrial process plants is spreading in Sweden. In many cases it could be advantageous to utilize RDF in some of the augmentation boilers required. A considerable degree of flexibility with respect to type of fuel is desirable for district heating systems and this again has created interest in the so called fluid bed type of boiler. Although higher in investment costs they can help to provide a safeguard in the type of climate prevailing in most of Sweden which is of considerable importance for the success of district heating.

Scrap Car Facilities: A plant for scrap car fragmentation was taken into operation more than five years ago and an additional plant was commissioned in 1977. Scrap cars are channelled to the recovery stations by means of a scrap premium which is refunded only when the scrap car is delivered to an authorized dealer. Almost 100 thousand tons per year of steel is recovered in this way, as compared to 700 - 800 thousand tons in total.

Location of New Sites. Transfer Stations: The increasing awareness of the hazards and nuisances associated with traditional waste disposal and treatment facilities has made it more and more difficult to locate new sites for these activities. This even applies to sites for the environmentally sound new facilities because still the public is not educated to distinguish when they are faced with decisions on site locations.

This effect, together with a general desire to build larger capacities for economy of scale, has created a need for more and more transfer stations where waste can be unloaded from smaller and specialized collection vehicles onto more economical longhaul vehicles.

We have only started on a development that will gradually accelerate and which will allow for a more balanced exploration of our resources also on a global scale. If we are to cover the needs for all those people who are still lagging behind even the most modest standards we must find ways of easing the increase in environmental impact otherwise resulting.

Resource recovery as part of a total resource management approach will be the answer. An equally important part is the parellel striving towards a reduction of the amount of waste generated. We have for instance in Sweden managed to reduce the thickness of news print by 20 per cent over the last few years, and we are at the same time gradually switching to high yield pulp processes resulting in less waste generation.

These two examples from one branch of industry illustrate what can be obtained by way of waste reduction. Numerous other examples from other branches of industry could be cited.

Now that our consciousness has been raised, the near future will bring improved legislation and practices concerning our environment and health. The combined effects will facilitate the introduction of resource recovery. This is due to such factors as scarcity of new landfill sites enforcement of environmentally sound disposal practices, and the application of national direction to these activities.

There is a limit, however, to the rate at which all these improvements can be introduced. Reasonable time must be allowed for the phasing out of existing practices, and considering the lead time involved substantial progress on a volume basis will not have materialized until the mid-eighties.

Public grants should be made available for the most obvious projects in order to get moving, and this is also the general practice in most countries. This is especially important in the present era of slow economic growth. The experience in Sweden clearly shows how the obstacles to resource recovery gain momentum in the prevailing economic climate.

But whether somewhat slower or faster, resource recovery in combination with waste reduction is clearly moving ahead in the many shapes in which it materializes. The various constraints experienced initially will gradually disappear and give way to a logical and desirable development.

A very important associated activity is education of the public, because informed and constructive participation and public support is necessary for achieving success in this field. Only in this way is it possible to obtain the concerted action at the state and local levels in co-operation with the various business organisations involved.

see charts over →

RESOURCE MANAGEMENT

- WASTE REDUCTION
  - Examples:
    - LONGER MILAGE CAR TIRES
    - REDUCED THICKNESS NEWS PRINT
- RESOURCE RECOVERY
  - SOURCE SEPARATION
  - MIXED WASTE RECOVERY

CONSUMPTION OF WASTE PAPER IN SWEDEN

In 1.000 tons

	1974	1976	1978	1981
Mixed	25	19	22	23
Corrugated and Board	157	205	300	300
News and Magazines	90	132	180	350
Other	73	72	78	87
Total	345	428	580	760
	NET EXPORT			NET IMPORT

RECOVERED SOLID FUEL - d-RDF ENDUSE CHARACTERISTICS

- Industrial boiler plants, district heating plants and utilities
- Supplements coal, peat or oil
- Several types of boilers such as chain grate suspension firing and fluidized bed.

APPROXIMATE QUANTITIES OF SOME TYPES OF WASTE x) IN SWEDEN

CONSUMPTION	MILLION TONS
Solid household waste & commercial	3
Car scrap	0,2
Sewage sludge (dry substance)	0,2

PRODUCTION (INCLUDING ALL MANUFACTURING & CONVERSION)	
Mining, mineral processing wastw	20
Iron & steel waste/scrap	1
Metal waste/scrap	0,1
Building waste	0,5
Bark	5
Paper waste (converters)	0,5
Food waste (solid substance)	0,5
Agricultural waste	16
Oil waste	0,2
Chemical waste	0,3
Sludge (pulp & paper)	5
General industrial solid waste	3,5

x) Internal circulation (plant revert) excluded

WASTE PAPER ENDUSES IN SWEDEN

In 1.000 tons

	1974	1976	1980
Consumer and transport packaging	190	235	325
News print	-	52	160
Tissue	46	50	80
Other	110	91	120
Total	346	428	685

PROCESSING OPTIONS FOR MUNICIPAL SOLID WASTE

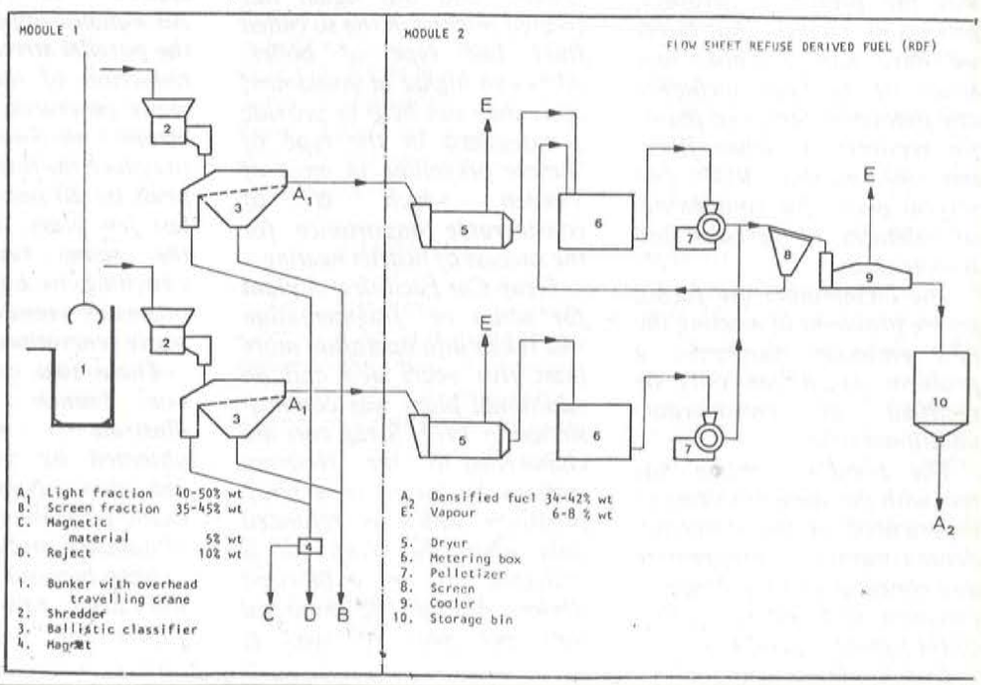
Basis: 60.000 tons per year input

Figures are heavily influenced by local factors

Type of processing	Investment mill Skr	Net operating cost Skr/ton input
1. Incineration with heat recovery	90 - 120	150 - 250
2. Pyrolysis with gas/oil production and heat recovery	90 - 140	150 - 250
3. Urban fibre recovery and by-product composting	35 - 55	50 - 100
4. Densified Refuse Derived Fuel and by-product composting	25 - 40	50 - 100
5. Controlled composting	10 - 30	60 - 110

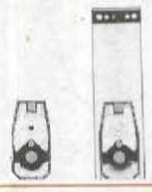
RDF PRODUCT CHARACTERISTICS

Humidity	approx.	15 Wt %
Ashes	"	10 Wt %
Combustibles	"	75 Wt %
Heating value, lower	"	15.000 kJ/kg (3600 kcal/kg)
Sulphur	"	0,2 Wt %
Particle size	"	30 x 30 x 30 (mm)
Particle density	"	800 kg/m3
Bulk density	"	450 kg/m3
Storage life	several months	

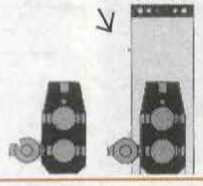


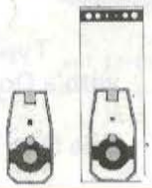
HEATING WHOLESALERS LTD

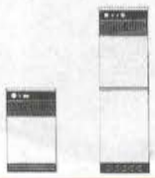
Present the PENSOTTI Range of Cast Iron Boilers

P1 Domestic
20.000 - 46.000


G1
9.000 - 25.000


M2 Dual Full Solid + Fuel
with hot water cylinder.
25.000 - 54.000


P2 Commercial
45.000 - 75.000


G2
12.000 - 24.000


M3
56.000 - 96.000


P3 Pressurised Commercial
84.000 - 180.000


G3
25.500 - 50.000


M4
105.000 - 224.000

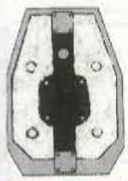

R4 Pressurised Industrial
131.000 - 320.000


G4
32.000 - 90.000


M5
195.000 - 370.000


R5 Pressurised Industrial
360.000 - 710.000


P4 Natural Draft Industrial
140.000 - 332.000


P5 Natural Draft Industrial
334.000 - 582.000


All Units Available with RIELLO Burner Units.

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FOR THE COMPLETE RANGE OF
PENSOTTI PRODUCTS
FOR ALL IRELAND

HEATING WHOLESALERS LTD

Thomastown, Co. Kilkenny, Tel: 056–24171 Telex 8797

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